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COMMAND AND GENERAL STAFF SCHOOL

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REVIEW
OF
MILITARY
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April 1943



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Reduction of Paper-Work—It Can Be Done

(A G-1 Responsibility)

By
LIEUTENANT COLONEL F. E. GILLETTE, *Infantry*
Instructor, Command and General Staff School

Red Tape and Paper-Work are as old as armies. Examples of protest against this form of Fifth Column activity are available from the time of General Sun Wu (500 B.C.) through practically every war to include World War II.

Perhaps the most outspoken tirade by a field soldier against those who attempt to run wars from behind desks is contained in a letter sent from Spain about 1810 by the Duke of Wellington to the Secretary of State for War. It follows:

My Lord,

If I attempt to answer the mass of futile correspondence that surrounds me, I should be debarred from all serious business of campaigning.

I must remind your Lordship—for the last time—that so long as I retain an independent position, I shall see that no officer under my Command is debarred by attending to the futile drivelling of mere quill-driving in your Lordship's Office—from attending to his first duty—which is, and always has been so to train the private men under his command that they may, without question, beat any force opposed to them in the field.

I am, My Lord,
Your obedient Servant,
(sgd) Wellington.

A more recent, though no less heart-felt protest came from a battalion commander whose unit was in training at a large camp. He wrote:

We are actually swamped with typed and mimeographed literature. More than 90% of it is utterly useless. Trite exhortations and repetition of much of the information found in field and technical manuals. Each general and special staff officer, all the way down the line, tries to amplify and expand his own department. It would take me 6 to 8 hours a day to read and digest all the stuff that reaches this battalion. The ----- Army and the ----- Army Corps are shoving it out by the ream, and this division shoves it on down, despite the fact that General ----- announced at a conference with us that such would not be the case. Each batch calls for added clerical work in rendering reports. We have training programs, master schedules, weekly schedules, progress charts, and so on ad infinitum. I have had six clerks busy day and night since we received our typewriters. The

field manuals and unit training program put out by GHQ are all we need to turn out a good battalion. But we don't have time to read the former, and the latter is so bastardized when the staffs get through changing that it is useless.

General Marshall and General McNair, among others, have issued warnings that paper-work should not be allowed to interfere with training.

But, apparently, warnings and protests are as far as anyone has gone. Like the weather, everybody talks about it; but no one does anything about it. It is hoped that someone in authority, seeing this article, will see fit to follow some of the thoughts suggested therein in the matter of supervision. It is further hoped that all general and special staff officers in every unit and Service Command will take note and take steps to alleviate the condition in their own units to the limits of their own capabilities.

THE PROBLEM

Lest someone say at the outset that the difficulty is an imaginary one or of little importance, we will give the results of a survey conducted among several hundred students at the Command and General Staff School in recent months. These officers, coming from all branches of the service, from units and headquarters of all sizes, and from all parts of the country, should furnish a fairly reliable picture. This survey indicated that in a few units company commanders have had to practically abandon personal supervision over training. In many units they spend over four hours daily on paper-work that comes from higher headquarters, and the average of all units approaches three hours daily. A *very few* fortunate company and battery commanders (may their commanders be promoted and their staff officers be decorated) spend not more than one-half hour daily on these duties.

This situation in general is an indication of an unhealthy condition. In an army training for combat against the world's most efficient armies, such procedure shows at least a lack of intelligence on the part of too many people. Company commanders must be taught to look forward toward the enemy. All of their time and effort during training periods as well as in combat should be spent on considering what effect the enemy will have on their units and what steps they should take to counteract and overcome this effect. They should waste no strength worrying about being "skinned" by some headquarters. They

should have no apron-strings tied to the rear.

That this latter is only too true is shown by the example, reported from Bataan, of a first sergeant who was seriously wounded while crawling across a fire-swept area to take the morning report to the company commander to get his initials.

We have an army to win battles. In the efficient administration of that army, it is evident that a certain amount of paper-work is unavoidable. Certain statistics have to be compiled, certain reports submitted in order that food, ammunition, and supplies may be forwarded in proper amounts to units needing them. But ADMINISTRATION IS IMPORTANT ONLY AS LONG AS IT SERVES TO INCREASE THE COMBAT EFFICIENCY OF THE UNIT. It must be the servant, not the master. The Law of Military Necessity governs on the battlefield and supersedes all other regulations, all the protests of swivel-chair administrators to the contrary notwithstanding.

THE CAUSE

The cause of this unsatisfactory condition may be traced to several sources:

First. In times of peace there was a tendency to emphasize externals, sometimes probably more than was necessary. Many a post commander overemphasized administrative duties to the detriment of training for war. These administrative duties often expanded far beyond the point of absolute necessity and left us when war came with an overhead of such duties which seem now to be an actual obstruction to the urgent job in hand—the rapid preparation and training of troops for immediate combat.

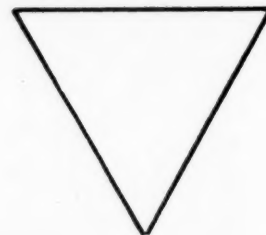
Second. An erroneous belief, shared by many staff officers, that it is necessary to expand every document that comes into their hands. They feel that to condense or pass on a memorandum originating in a higher headquarters would be an indication of lack of efficiency or attention to duty on their part or would reflect discredit on the importance of their jobs. Probably the prize example of this was offered by a recent air force student at the Command and General Staff School. The Command of which he was adjutant was scattered in three Service Commands. His headquarters received distribution direct from the AGO and from each of these three Service Command Headquarters. Although he received the original document from the AGO, each Service Command felt it their duty to interpret this document and to expand it before forwarding. As a result he frequently received several hundred copies of directives requiring him to do something *four different ways*.

This procedure can be compared to a snow-ball rolling down hill. It gathers weight but loses speed as it goes. When it gets to the bottom, it is too heavy to handle; and the company commander, whose office is the final repository for this mass of paper-work is literally "snowed under."

Organization for administration and the amount

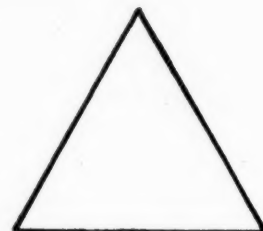
of paper-work handled do not balance. A pyramid, showing administrative organization looks like this:

War Dept
Army
Corps
Division
Regiment
Company



But a pyramid showing the amount of paper-work handled by each headquarters (in comparison to its strength) would be like this:

War Dept
Army
Corps
Division
Regiment
Company



This is a conception of the problem that few individuals have taken the time to develop. That it is true, however, is shown conclusively by the experiences of these students from whom this information has been received.

Third. Most individuals connected with administrative paper-work lack an appreciation of the problem when viewed from the viewpoint of the organization commander. It is natural to expect that to each individual his own job seems the most important thing in the world. If he has not been educated to see the over-all picture and the part that his contribution must play in the scheme of things, it is also natural to expect that he will give an attention to details to a degree not warranted by conditions.

It has been said that the primary aim of personnel administration is to furnish statistics and records to protect the interests of both the government and the soldier (or his dependents) when the pension applications start to pour in. To do this, accurate records must be kept. But the difficulty lies in the insistence by some administrative officers that these records be kept by combat units with the same degree of accuracy that is possible, for instance, by a general hospital in the zone of the interior. This insistence shows a complete lack of knowledge of conditions in the combat area. It shows a complete absence of imagination. And in many cases it indicates a complete lack of interest in the problem of the unit commanders on whose shoulders lie the responsibility of winning or losing this war. Grand strategy is important, but in the final analysis it will be the caliber of the leadership and the professional knowledge of the company officers that will cause this strategy to succeed or fail.

REDUCTION OF PAPER-WORK—IT CAN BE DONE

A brief analysis of the situation in the combat zone will show the fallacy of expecting a standard that not only will handicap the combat troops, but is actually impossible of attainment. Suppose the first sergeant on Bataan had not been wounded and had had the morning report initialed. How accurate was it in the first place? How could the first sergeant possibly know, on the battlefield, what had happened to a large part of his men? He knew only the whereabouts of those men actually reported present at a given moment and of those reported dead or wounded during the preceding period. But how about the many reported missing who later show up in the hospital, the straggler line, the list of dead, or in enemy prison camps? Why then insist that a first sergeant get initials on a document that is far from accurate to start with? But, supposing it were accurate, what might happen to the runner taking it back to headquarters? He stands a good chance of being killed—and the report, of being lost. In these days of mechanized attacks, infiltration raids and dive-bombing, headquarters and rear echelons are subject to destruction. Personnel clerks will be killed, company field desks blown up, records scattered or captured—and yet officers sitting in comfortable chairs far from the scene of danger insist on upholding the good old standards of peace-time administration. They not only insist but they also cannot understand why their insistence is not taken seriously.

A little imagination will show the ridiculousness of demanding a standard during training periods (to the detriment of that training) that cannot possibly be maintained in battle.

Fourth. To a lack of knowledge of the situation on the part of administrative officers. These individuals are tied to their desks by paper-work coming from higher headquarters. They in turn add to the mass of material and serve to tie all subordinate commanders and staff officers to their desks. The resulting lack of knowledge of the situation as it exists in their units increases confusion because many orders are issued based on situations that do not exist. Morale of subordinate commanders and of troops cannot help but suffer under these conditions. Staff officers and commanders *must* get out with their units. They must know conditions at all times, they must learn morale conditions, state of training, and leadership ability of commanders by personal observation, not from written reports.

In this connection it must not be assumed that personnel administrative officers are the only offenders. Supply and training orders, reports and mimeograph material of all kinds serve to add to the burden in no small degree. Progress reports, progress charts, training and marksmanship reports of all types, sizes, and amount of detail are prime causes of headaches and wasted time and effort on the part of company commanders.

Special staff officers are also frequently at fault.

The surgeon must have a special form of report coming directly from companies. He can't in some cases seem to get the information desired from hospital records or from sick call reports or from information available in the Adjutant General's Office. The Judge Advocate General must have a separate report (in a special form) of courts-martial cases. It is too much trouble for his assistant to compile the information from other sources—the company commander must personally render a report. The dentist's report of dental survey, the Provost Marshal's reports of delinquencies, arrests, etc.—all seem to end up in the lap of the company commander.

THE SOLUTION

This problem can and must be solved. But it is not enough for some headquarters to put out a mimeograph calling attention to the problem. Commanders and staff officers everywhere must supervise to see that it is done. Administrative officers must be educated to the proper attitude. Mimeograph paper allowances must be reduced. Personal contacts must be used whenever possible instead of letter writing. Each headquarters must attempt to reduce the length of communications passing through its hands, and, finally, everyone must stop blaming higher headquarters for their troubles and start looking to see where they themselves are at fault. All of these factors come under the staff supervision of the unit G-1, adjutant, or personnel director who must be alive to his responsibility. These solutions will be considered in order.

First. General staff officers must get out from behind their desks. Their duties are to plan, to recommend policies, and to supervise. Their planning cannot be done efficiently unless they know the situation in the units to be affected by their plans. They cannot recommend policies intelligently unless they know thoroughly the conditions in all units. And it is not enough for a commander to issue an order—he and his staff must exercise active supervision over its execution in order to insure (1) that the order is understood and (2) that it is being carried out exactly as the commander intended. The policy already published by the Chief of Staff, General Marshall, calling attention to the importance of reduction of paper-work must be followed up by *active* supervision by commanders and staff officers all along the line.

Second. Paper-work can be reduced automatically by reducing the number of administrative overhead personnel to the point where it becomes physically impossible for them to accomplish all the mass of detail formerly required of them. The new infantry division organization should help solve the situation by doing just that. However, this is only part of the solution. Higher headquarters must be informed of this reduction and *all* administrative, training, and supply headquarters personnel must

be imbued with the spirit of service for the fighting troops. All must be made to realize their proper place in the scheme of things. They must see that any sacrifice of comforts, any extra hard work or long hours on their part in order to assist the efficiency of the combat units is little enough considering the conditions under which these fighting men have to live and work. Organization commanders must understand that administration is important and can aid them materially when handled properly, and they must know that this proper handling is their responsibility within their units. All concerned must be encouraged to find new ways to simplify and speed up procedures.

In connection with the education and training of administrative personnel to develop a proper attitude and spirit, the following instructions issued by a regimental commander are offered as a solution:

1. The most important activity in the regiment is training for combat. If what you are doing does not assist training in some way, it isn't important.

2. You are supposed to know more than any other group in the regiment about army regulations and administration. Don't be impatient with others who show less knowledge than you. Part of your job is to help and instruct them.

3. Personal contact is worth more than a dozen letters. Don't write when you can telephone or have a personal conference.

4. Never let your personal feelings or grievances creep into your correspondence or conversations. If your contacts cannot be pleasant, postpone them until you are in a better humor. Good results are never obtained if you make a person angry.

5. Such remarks as "strict compliance," or any phrases that would antagonize the recipient or cast any doubt as to his ability, integrity, or manner of performance of duty have no place in military correspondence. Let common courtesy be the guide. In unofficial correspondence and in personal contacts the words "please" and "it is suggested," will do more toward obtaining efficiency and cooperation than all the big words in the dictionary.

Leadership can be exercised administratively as well as tactically. If you have made someone do something unpleasant and still not mind it you have shown leadership. In this connection the phrase "not favorably considered" is better psychology than "disapproved."

7. Remember—you do not as individuals *command anything*. Your job is simply and entirely to relieve the commanding officer of details in connection with policies already outlined. You have no authority to issue original orders to company commanders, 1st sergeants or others. Don't get the idea that *you* are issuing the orders when you are doing so for the commanding officer. Do it in the

way you think he would want it done. *Keep this in mind.*

8. Punishment is the prerogative of command only. Do not allow any hint of criticism or censure to appear in your relations with others. Non-compliance with orders will be called to the attention of the commanding officer for action.

9. Learn to be versatile and resourceful. Certain peace-time methods are obsolete in this war because they are too slow. Adapt yourself to the new conditions. The easiest and most efficient way is the best way.

10. New ideas are valuable. If you have a better way to do something, tell the adjutant about it. It may or may not be possible under the regulations, but there's no harm trying.

11. Filing. File the minimum, not the maximum. Don't clutter up the files with a single paper that is not *important* as a reference.

12. Never make a reference to Regulations or orders without a brief statement regarding subject matter of same. Nothing is more annoying than to thumb through a file of orders or regulations only to find out that the reference does not concern you.

13. Letters, reports, records, etc. going forward from your office usually are your sole representative in the offices through which they pass and are the means by which your headquarters is judged.

14. Remember the staff is the servant of the line.

MOTTO

"Loyalty, Cooperation, and Courtesy"

Third. One definite solution of the reduction of the volume of paper-work is a system of rationing of all types of paper used by every headquarters. A survey of the amount of paper used during any given month, say December 1942, should be used as the basis for a fifty per cent reduction beginning in April 1943. This would, of course, have to be applied uniformly by all units within an organization and at the same time.

Fourth. Except in combat, where the telephone is reserved for important messages concerning the tactical situation, everyone should be encouraged to use personal contacts, visits, and telephone calls to the maximum. We are a nation of telephone users, and yet many as soon as they get in the army, want to write letters to the man in the next office. If a commander feels it is necessary to have everything in writing because he does not trust a subordinate, he should reclassify the subordinate rather than take the course of least resistance.

Fifth. One excellent example of a practical method of reducing paper-work has been furnished by a tactical headquarters that published a policy along these lines;

REDUCTION OF PAPER-WORK—IT CAN BE DONE

Each staff officer will carefully study each document passing through his hands with the following thoughts in mind—"Is it necessary to pass this on to subordinate units? If so—can I reduce its length at least fifty per cent? If it cannot be reduced that much, how much can I reduce it? To whom is it vitally necessary that this be sent?"

After reducing the length of each as much as possible, he will supervise its distribution to insure that it is sent only to those directly concerned with its contents.

Letters that cannot be reduced and which require indorsements will be forwarded whenever possible with the simple statement "Forwarded." In all other cases, indorsements will be as short as possible.

Similarly all officers will check all documents originating within this Headquarters for (a) vital necessity, (b) brevity and (c) distribution only to those concerned.

It may be noted that morale of subordinate commanders and staffs was raised materially when the results of this policy became evident. It is true that this threw an added burden on the staff of that headquarters because the load still came from above—but staff officers exist for the purpose of aiding lower units as well as their own commanders.

Sixth. It is a popular pastime in the Army to "pass the buck." And it may be passed up as well as down. That is, many individuals place all the blame for everything that goes wrong in their units to the lack of brains, lack of realism, or lack of knowledge of their problems on the part of the higher commander or staff officers. They do not stop to think that perhaps their own subordinate commanders and staffs are saying those very things about them.

It is true that many difficulties are due to the policies of higher headquarters. But if *each* staff officer would analyze his own work, his own attitude, and the orders, mimeographs, etc. he issues, he will usually find that housecleaning can start at home. Let each be sure that his own affairs are in order before he blames anyone else.

It is believed that a division headquarters is the place where most of the corrective policies that will assist the Company Commander may be put into effect.

A G-1 RESPONSIBILITY

It is therefore suggested that the division G-1 is the general staff officer most concerned with this important activity. All adjutants and higher G-1's as well as all administrative personnel must, however, take a personal interest in it to the end that the results outlined above may be obtained.

It was stated earlier that it is not enough for a commander to issue an order that "every effort must be made to reduce the volume of paper-work." His G-1, the general staff officer concerned with person-

nel, administration, and morale must exercise staff supervision to see that the order is carried out.

Some specific ways in which this supervision may be done are as follows (copied from a text, *The Duties Of a Division G-1*, now being prepared at the Command and General Staff School):

SUPERVISION BY G-1. Your supervision of this activity should be done with but one thought in mind—is the administration actually assisting in raising the combat efficiency and the morale of the troops? Any other approach will have two dangers: (1st) you will become buried in a mass of details and lose your perspective, and (2nd) you will soon find that you are taking over the Adjutant General's work or interfering with it.

How can you tell whether the system is accomplishing the purpose just stated? By noticing how evident it is. When it is working so smoothly and efficiently that you never notice it—it is performing its mission. When it is continuously being brought to the notice of the tactical commanders, it is running out of gear. In the former case a word of commendation to the Adjutant General and all administrative people for a real contribution to the efficiency of the division is in order; in the latter case you should analyze the situation and make recommendations for its improvement.

Some points to check in the latter case:

Do unit commanders understand their responsibility in connection with administration?

Are Machine Records Unit services being utilized to the maximum? Are they assisting your division by reducing paper-work and reports required of all echelons? If not, have you informed Corps G-1?

Do staff officers ask units for reports when the information is available elsewhere? (Example:—The Surgeon asking for a special venereal report from all units instead of asking the Hospital). Are out-of-date reports discontinued? Are all reports actually needed—and used?

Are procedures simple, flexible and rapid? Be on the alert for short-cuts.

Does the amount of paper-work required of company commanders interfere with their training?

Is there a feeling of helplessness, lowered morale and uncertainty due to frequent changes of orders by division headquarters?

Does division headquarters take the grief that comes from above on its own shoulders or pass it on in order to cover itself?

Does the AG have sufficient trained personnel to handle the job? Can you help him out temporarily from other sources or can you help reduce the size of his job by prescribing new policies within the division (or by getting help in this connection from Corps G-1)?

MILITARY REVIEW

Are you so immersed in the details of the division headquarters paper-work that you don't know what is going on in the division?

Are you interfering with the work of the AG or are you helping him?

The answers to these questions cannot be learned by sitting behind a desk. You must get out and know what is going on. You are not a desk soldier. You must not be lazy. The American soldier is worthy of any amount of time and effort you can spend in his behalf.

"Red-Tape" methods, or doing things the hard way, is an indication of inefficiency. The right

way is the easiest, the smoothest and most efficient.

THE MIMEOGRAPH

*I wish I had a commission
In J. Caesar's legions of old
Where the mimeograph as we know it
Was a story that hadn't been told;
Their orders were then mostly verbal;
They were seldom called on to write,
For most of an officer's duties
Were training his men how to fight.*

* * * * *

—Author Unknown.

No plan of operations can look with any certainty beyond the first meeting with the major forces of the enemy . . . The commander is compelled during the whole campaign to reach decisions on the basis of situations which cannot be predicted. All consecutive acts of war are, therefore, not executions of a premeditated plan, but spontaneous actions, directed by military tact. (Tact—skill or judgment in dealing with men or negotiating difficult or delicate situations.—Ed.) The problem is to grasp in innumerable special cases the actual situation which is covered by the mist of uncertainty, to appraise the facts correctly and to guess the unknown elements, to reach a decision quickly and then to carry it out forcefully and relentlessly. . . . It is obvious that theoretical knowledge will not suffice, but that here the qualities of mind and character come to a free, practical, and artistic expression, although schooled by military training and led by experiences from military history or from life itself.

—Field Marshal von Moltke.

American Divisions Take to the Air

BY
BRIGADIER GENERAL E. G. CHAPMAN, *United States Army*
Commanding General, Airborne Command

News broadcasts on November 7, 1942, exactly eleven months after Pearl Harbor, announced the employment of American airborne troops, both in the invasion of North Africa and in the advance of General Douglas MacArthur's forces against Buna. The significance of those announcements is that as American troops swing into the offensive on both sides of the world, they are employing the strategy of vertical envelopment. It is significant also that in both theaters of operation, the attack from the skies by American troops was coordinated with a strong offensive on the ground and the sea.

As the war progresses from the defensive to the offensive stage for the United Nations, the organization, training, and tactical employment of airborne troops is becoming increasingly more important.

GENERAL

Airborne units are ground force organizations specially organized, trained and equipped for aerial movement into the zone of combat. To the average reader the term "airborne" immediately brings to mind parachute units. Although it is true that parachute units are an important element of an airborne force, these units are only a part of the total troops that come under this definition. Actually only about one-third of the companies in an Airborne Division are parachute units.

Tactically, standard airborne organizations fall into three general classifications—Airborne Divisions, Airborne Brigades, and separate parachute and glider units. A fourth classification, which is not a standard Airborne organization but which is frequently confused therewith, is a triangular infantry division which has been given such training as will enable it to be transported by aircraft. An infantry division which has received this special training and is to be employed in Airborne operations may be referred to, at the time of the operation, as an air transported division.

Airborne troops are a relatively new development in the history of warfare. Such troops had actually been contemplated when Napoleon was considering the invasion of England, but nothing concrete was attempted until the United States experimented with parachute infantry in 1928. However, little enthusiasm was created for the principle of the "vertical envelopment" at that time and the experiments were discontinued. Russia trained large numbers of parachutists in the past decade, but Russia has made

little use of airborne troops tactically. Germany, recognizing the possibilities such troops afforded, began to train parachutists in large numbers. The logical progress by Germany from parachutists to gliders was not completely disclosed until the airborne invasion of Crete, though some reports indicated their use in the operation against Fort Eben Emael in Belgium.

The United States after its early experiments, had done little towards training and equipping airborne units until August of 1940, when the intensive training of parachutists began. Then, in October of 1941, an airborne battalion was organized for the purpose of testing the use of cargo aircraft for transporting troops and supplies. One task was to determine what equipment could be carried and how it must be loaded and lashed in aircraft. This resulted in the alteration of certain cargo airplanes for airborne use and the designing of aircraft for the specific use of airborne units.

In April 1942, the Airborne Command was established at Fort Bragg, North Carolina. The function of this Command is to organize and control the training of all airborne personnel and units and to promulgate such policies, tactics, and standard operating procedures as are deemed necessary, working in close cooperation with the Troop Carrier Command and the Air Support Command.

AIRBORNE UNITS

Parachute units are streamlined, have little heavy equipment, but are strong in fire power. They may be employed as organic or attached elements of airborne divisions in conjunction with the landing of other units by glider or transport aircraft. Conversely, parachute battalions, regiments or even brigades may be employed in the execution of independent missions.

Parachute companies are compact, hard-hitting units differing from ordinary units mainly in armament. The basic weapons are the rifle, mortar, and light machine guns. These are supplemented by sub-machine guns (Tommy guns) and an additional weapon for all personnel excepting those operating crew-served weapons. Each rifle company has a number of men trained to execute demolition work.

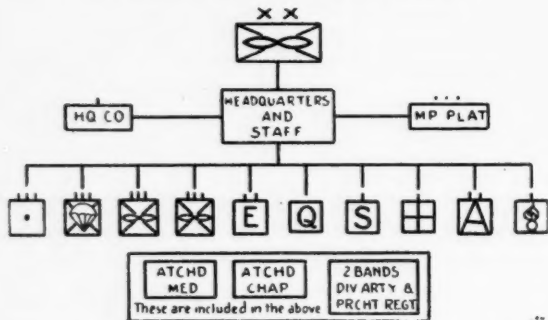
In the parachute infantry battalion the heavy weapons company has been incorporated into the headquarters company, and light machine guns replace the heavy machine guns.

Parachute regiments are merely groupings of parachute infantry battalions plus a Medical Detachment, a Headquarters and Headquarters Company, and a Service Company.

Airborne Brigades may be set up to perform specific tactical missions and will consist of those units necessary for the accomplishment of such tasks. They may consist of infantry alone or have attached to them units of other arms or services.

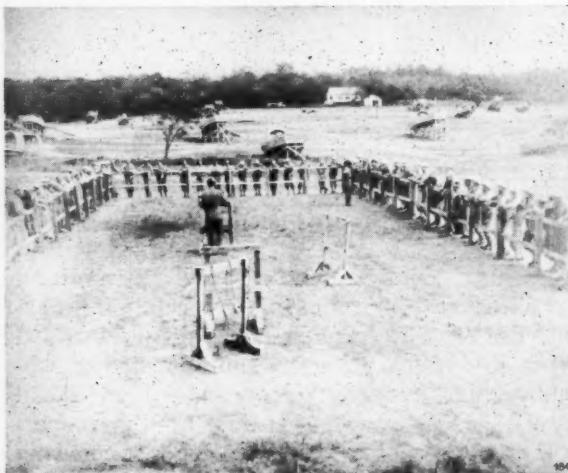
The Airborne Division constitutes the primary airborne striking force. It is organized in accordance with a standard table of organization and may or may not have other parachute or glider units attached to it for training or for operations. It consists of a parachute regiment and two streamlined glider infantry regiments plus necessary division units as shown in the accompanying diagram. The airborne

AIRBORNE DIVISION



division has greater relative automatic fire power than the conventional triangular division.

Division artillery of an airborne division consists of parachute and glider field artillery battalions, equipped with 75-mm pack howitzer. The parachute artillery pieces must be dropped in parachute loads

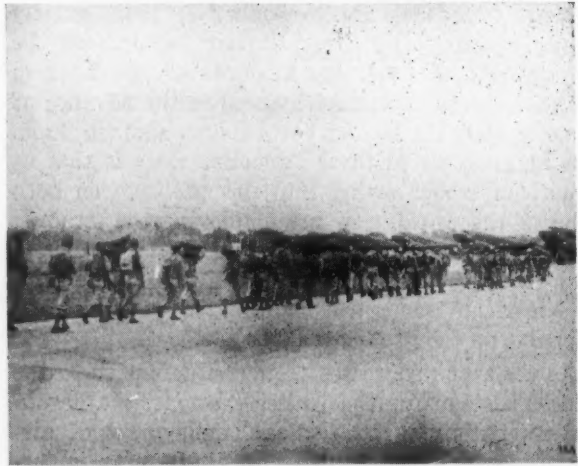


INSTRUCTION IN KNOT-TYING

to be assembled on the ground by the crews who will drop simultaneously with the weapons. In the glider field artillery battalions, unlike the parachute battalion, the weapons will be in one piece ready to go

into action as soon as they are unloaded from the gliders.

Another integral part of an airborne division is the Antiaircraft Battalion. The automatic weapons batteries have 37-mm or 40-mm antitank or antiaircraft guns while the machine-gun batteries are armed with .50 caliber machine guns. This battalion is included in the Airborne Division for the protec-



MARCHING TO THE LOADING AREA.

tion of landing areas (glider and/or transport) seized by the division or advance elements thereof.

Parachute combat engineers and glider-borne engineers, armed and equipped to perform engineer functions, are an organic part of the division. Working in close coordination with the infantry, the missions of the engineers are to destroy bridges, reduce strong points, construct obstacles, lay mine fields and assist in clearing landing fields for successive echelons of airborne and air-landing troops prior to the arrival of the aviation engineers. The mission of the aviation engineers is to repair and to improve runways on landing fields for successive waves of air-transported infantry divisions.

Included also are a Quartermaster Company, a Signal Company, a Medical Company and an Ordnance Maintenance Company, all transported by gliders.

The Glider Infantry Regiment is unlike an ordinary infantry regiment in that it has two battalions instead of three.

The glider battalion consists of three rifle companies and a headquarters company. Much of the usual infantry transportation is eliminated due to the present impossibility of transporting certain vehicles by aircraft because of their weight or bulk.

TRAINING

The purpose of basic training of the individual airborne soldier is not unlike that of the training of the conventional unit whether it be infantry, artillery, antiaircraft, engineers, or special units. Since the airborne soldier is part of a hard-hitting but rela-

AMERICAN DIVISIONS TAKE TO THE AIR

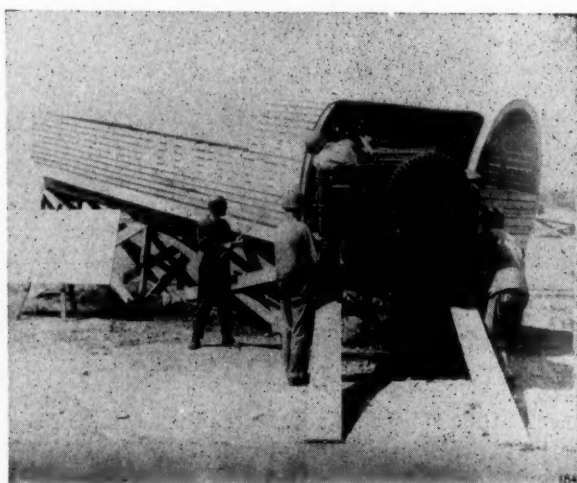
tively light team, he is intensely trained in individual combat and in the use of all weapons with which his unit is armed. He is trained to be more self-sufficient than the ordinary soldier.

The Parachute School at Fort Benning, Georgia, trains all parachutists in jumping technique. Many go to school as individuals, are qualified as jumpers in a four weeks course, and are then assigned to parachute units. On the other hand, parachute units are activated, finish their thirteen weeks basic training, and go to the Parachute School as a unit for jump training. The course is a rigorous one and the parachutist graduates a highly-trained athlete thoroughly prepared for individual combat. Unit training is conducted at various stations. Soon the individual parachutist becomes an efficient member of an even more efficient team.

For parachute and glider troops the toughening program is considerably more intense than it is with other types of units. They are expected to march great distances at a high rate of speed and to be ready for combat at the end of such marches. They must be capable of sustained efforts and prolonged physical exertion even though subjected to reduced rations and limited water allowances.

Officers and noncommissioned officers are specially selected from among the men who excel in initiative and leadership. Schools are conducted to instruct officers and non-commissioned officers in the tactics and technique of the respective arms and services for air as well as ground operations.

Glider troops also require specialized training in the loading, lashing and unloading of various equipment into gliders and airplanes. Speed and precision are essential, therefore glider troops must become efficient in those aspects of their training. Mock-ups—unadorned, full-size replicas—of the various types of cargo aircraft used by airborne troops are set up for practice in loading, lashing and unloading equipment.



"MOCK-UPS" (FULL SIZE REPLICAS) ARE USED TO TEACH LOADING AND LASHING

In general the training of an airborne division is given in three phases: Individual training—13 weeks; unit training—13 weeks; combined training—12 weeks.

The combined training phase consists of complete staff planning of airborne operations, but the para-



OPEN "MOCK-UPS" ALLOW A LARGE GROUP TO VIEW INSTRUCTION

mount importance of the ground operation is not forgotten. During this phase, troops are transported by aircraft and participate in airborne problems under conditions as closely related to combat as can be devised. Close cooperation and coordination is maintained with the Troop Carrier and Air Support Commands since these Commands are an integral part of any airborne operation.

When it is desired to employ units smaller than the airborne division, such units will be selected either from independent organizations or from airborne brigades, leaving the airborne division available for missions in keeping with its strength. Such an airborne task force may include the following: special parachute units, antiaircraft batteries, engineers and special medical units.

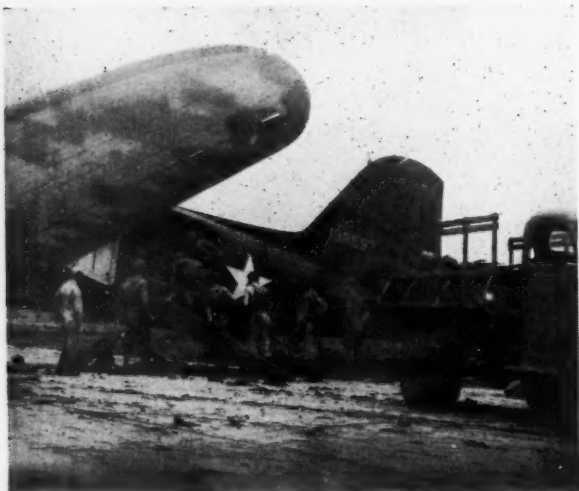
Another unit used in airborne operations is the ordinary triangular division which has been streamlined and adapted for that purpose. The division, when stream-lined, is called an air transported division and is the largest single unit that may be put into combat by air. The first step necessary in adapting a triangular division for airborne operation is to strip it of all its transportation or equipment unsuitable or unnecessary for air operation which reduces, to some extent, its fire power. The standard 105-mm and 155-mm battalions cannot be transported in existing aircraft but 75-mm pack howitzers and 105-mm howitzers, M3, can replace these weapons.

AIRBORNE OPERATIONS

In considering the tactical employment of airborne units we must look to the past and revise with an eye

to the future. Germany has been the leading exponent of the use of airborne units so it is fitting that we examine the tactics employed and the results obtained by her airborne units.

Reports on the employment of airborne units by Germany in the campaign against Poland bring to light no extensive use of these types of units. It is in the campaign against the Low Countries that Germany first used airborne troops on a large scale. In the attack against Holland, Germany was faced with successive defense lines which, though not impregnable, would force her to slow her movement and allow the Dutch to destroy the bridges to the "Fortress of Holland," that portion of Holland including the Hague, Rotterdam, and Amsterdam which is



FROM TRUCK TO "LASHED IN THE AIRPLANE"—A MATTER OF MINUTES

separated from the main portion of the country by the Maas and Waal Rivers. This problem was met through the use of parachutists who dropped at the bridges, captured them, and prevented the Dutch from destroying them. Thus, when the Panzer units had pierced the defensive lines, the bridges were intact and the fate of Holland was sealed.

In Belgium similar tactics were used to reduce Fort Eben Emael, key fortress of the King Albert Canal defensive line. Here one hundred airborne troops, parachutists and glider-borne, landed inside the fortress, imprisoned some eighteen hundred Belgians, and prevented its effective use. Again a small group of airborne troops captured or rendered useless a key position thus facilitating the rapid advance of German ground units.

The German airborne attack against the Island of Crete, in May, 1941, marks the first time in history that a major operation was carried out by airborne troops alone. The British, having suffered severe reverses in Greece, were forced to evacuate and, due to scarcity of available shipping, transported most of the evacuees to Crete. It is now obvious that the Germans had planned the conquest of Greece to include

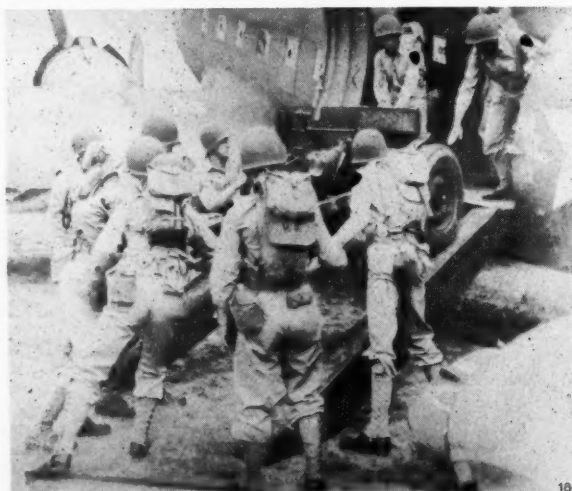
the capture of Crete, a strategically important island in the Eastern Mediterranean. What was originally planned as a sea and air invasion turned completely into an air invasion when British naval units broke up two successive sea convoys.

The German's plan called for small glider units to land at key positions, to be followed fifteen minutes later by large parachute elements. The parachute units which landed among British positions fared poorly, but the forty-five gliders (450 men) who landed in dry stream beds west of Maleme Air-drome formed the nucleus of the action which resulted in the capture of that airdrome. This was the decisive action, for an airdrome once secured allowed the Germans to ferry men and equipment by transport airplanes. As more and more troops and equipment debouched from JU 52's on Maleme airport the pressure on the British increased. Finally this pressure forced the British to evacuate and left Crete in the hands of the Germans.

TACTICAL CONSIDERATIONS

It is not contemplated that airborne divisions be used as suicide forces. The same basic elements necessary for a successful operation by an ordinary division will be considered before committing an airborne division. In addition, certain other factors, peculiar to an airborne operation must be weighed. Normally the airborne division will not be used to perform a mission which an ordinary division can successfully accomplish.

The employment of airborne units, in conjunction with large forces, ground and air and possibly sea, will anticipate the eventual joining of the airborne units with other ground forces. The maximum dis-



UNLOADING A 37-MM AT GUN FROM A C-47 AIRPLANE.

tance of the proposed landing area in the rear of the hostile forward area will not ordinarily exceed that distance which can be covered in a specified number of days by other ground forces in effecting a junction with the airborne units.

AMERICAN DIVISIONS TAKE TO THE AIR

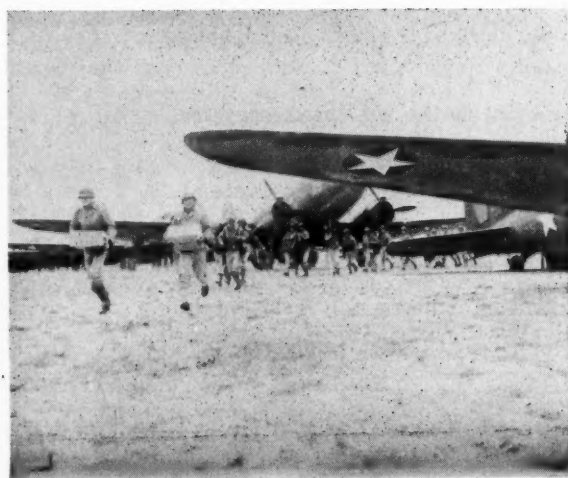
The employment of airborne divisions will be premised upon the assumption of positive attainment of air control during flights of the division toward the landing area, during the attack, and as long thereafter as may be practical or necessary. Such air control may be limited to the sector of operations and need not be general.

Because the concentration of large numbers of transports and the movement into combat requires the facilities of many arms and services and is basically an expensive move in terms of equipment and preparation, an airborne force ordinarily will not be committed on a mission which is capable of being performed by other ground forces.

Ordinarily, airborne forces will be committed against limited objectives in a restricted area rather than unlimited objectives in a general area and, further, they ordinarily will not be used against any objective other than one of major importance to the campaign as a whole.

Some typical missions which may be assigned to airborne units are as follows:

1. Airborne units may strike in rear of enemy defenses and disrupt communication and the movement of enemy reserves while a larger force attacks on the ground or by sea.
2. They may seize and hold key terrain and enemy installations to block the movement of reserves or to prevent an enemy withdrawal.
3. They may assist friendly ground forces to break through a main line of resistance (by striking within or behind a weak sector).
4. They may capture and hold airdromes within enemy territory, deepen or precede spearheads driven into enemy positions, or act as reserves flown in to strengthen a partial success and make of it a certain victory.



ACTION STARTS IMMEDIATELY AFTER LEAVING AIRPLANE.

The supply of airborne units follows normal procedure in that higher headquarters is responsible for the flow of supplies to the destination area at which

troops have been landed by air. An aerial link must, therefore, be added in the normal chain of supply. This aerial link is established between the departure



OUT AND INTO ACTION IN THIRTY SECONDS.

airdrome and the destination landing area, and its operation is the responsibility of the Task Force, Army, or Corps Commander.

At the departure airdrome the higher headquarters must operate a holding and reconsignment depot. A Quartermaster Depot Company, Supply, which has been specially trained in aerial supply, provides the operating personnel for this depot and the personnel to accompany the supplies on the air movement forward to the destination landing area. This unit will handle all classes of supply.

The supply plan for an airborne operation must include the determination of a stockage level of all classes of supplies to be concentrated at the holding and reconsignment depot. A balanced portion of all classes of this stockage level should be packaged for parachute delivery prior to the execution of the mission, to be available upon call for supply by parachute to any unit for which no other means of supply exist.

Additional labor and transportation for the operation of the holding and reconsignment depot at the departure airdrome is available from Quartermaster Service Battalions and Quartermaster Truck Regiments.

Upon arrival of supplies at the destination landing area, the division supply services assume control, and the distribution of supplies within the airborne division follows normal procedure. The limited transportation which can be transported by air demands the use of all tactical transportation within the division, and all captured enemy vehicles, to effect prompt distribution of supplies. Units within the division will normally dispatch transportation back to the division supply dumps near the destination area for all classes of supplies as needed.

The planning of an air movement cannot be carried out on the spur of the moment. Necessary Air

Force equipment and airborne units require time to concentrate at take-off airdromes. Staff plans for airborne and air transported units will also require a greater length of time than normal movement by truck, train or ship. Air movement gains its advantage of speed over any other method only after the transport aircraft is ready to take off from departure fields.

Although relatively young and untried, airborne units of all classifications possess tremendous poten-

tial strength as a part of the Army of the United States. Recent events very definitely point to their use in the operations of the future when these units will write a living page in the annals of American Military History.

Airborne divisions, air transported divisions and separate parachute and glider units are not a thing of the future in the American Army. They exist in substantial numbers and more are on the way. American divisions have taken to the air.

One of the oldest examples of the efficient work of a staff is found in the 17th Chapter of the book of Exodus. When Moses was leading the children of Israel through the wilderness, he was opposed by a tribe under Amalek. Moses ordered Joshua to choose out some men and go out and fight against Amalek.

Moses, as commander in chief, with Aaron and Hur as assistants or staff officers, supervised the operation. The operation was described as follows:

"And it came to pass, when Moses held up his hand, that his own forces prevailed; and when Moses let down his hand the enemy prevailed. But Moses's hands grew heavy, and he sat down upon a stone, and Aaron and Hur stayed up his hands, the one on one side and the other on the other side; and his hands were steady till the going down of the sun. And Joshua routed Amalek with the edge of the sword."

Thus we see that when a commander could do the work necessary for victory he was successful; but by doing all the work himself he soon became exhausted and required assistance; and it was only the assistance of a staff which helped him do the necessary work to bring victory, to win a complete victory. Note, however, that it was the hand of the commander that brought victory—Aaron and Hur as staff officers only assisted in holding up the hand, thus carrying out the will of the commander and doing the detailed work necessary for victory.

—Anonymous.

The Chief of Staff

[Reprinted from *Krasnaya Zvezda* (U.S.S.R.) 15 December 1942.]

Every day of combat confirms anew the vast importance of the role played by Chiefs of Staff as closest assistants of commanders in troop leadership. The Chief of Staff is called upon to take care that all small parts of the large and complicated military mechanism function with top precision, that every unit and sub-unit and all the combat equipment, conduct the battle in a coordinated manner and in exact conformity with the commander's tactical plan. Cooperation must not be disrupted under any changes in the situation.

The fundamental task of the Chief of Staff is organization and maintenance of cooperation for the entire duration of combat. Some Chiefs of Staff, while correctly providing for and executing necessary measures assuring the coordinated actions of forces before the start of offensive action, quickly lose contact with their units during the progress of combat. As contact is lost, direction is disrupted and cooperation deranged, the force of the blow diminishes, and not infrequently the execution of the combat mission collapses in the final accounting. During offensive action of a certain infantry division northwest of Stalingrad, preparation for combat was accomplished in a masterly fashion. The fire agencies, tanks, infantry, all the organic and supporting elements undertook offensive action to the very minute as designated. Regiments were penetrating deep into enemy positions. But suddenly liaison with individual units was disrupted, and reports were reaching division headquarters with growing infrequency. The Chief of Staff was losing his orientation in the situation. Three hours after the beginning of combat he was unable to report to the division commander the exact information on the situation of the individual units.

Combat in depth of the German defense is the most difficult period in directing forces. In planning organization of liaison for offensive action, the staff must anticipate the various stages of combat and provide for employment of those means of liaison which will assure uninterrupted control. It is particularly wrong to depend only on one wire connection. Modern forms of the war of movement require the most varied methods and means of liaison. Radio messages, radio signals, delegation of a greater number of liaison officers to individual units, delegation of staff officers to units, or observation by the latter from the air of the field of battle—all these

prudent measures must be taken in advance and launched by the Chief of Staff. Only this will assure reliable and uninterrupted liaison with the infantry and supporting units.

The commander himself makes the decision and determines the intention of the operation. But no matter how experienced the commander, no matter how great his operative or tactical skill, his ability to solve the combat problem is directly dependent upon the completeness of his information of enemy strength, the situation of his own forces, and the latter's being supplied with combat material.

The staff is not merely a field office, rather it is a military combat collective, a military team. The Chief of Staff has the duty to penetrate into all details of combat activity of the units, to keep his hand hourly on the pulse of the battle, and to help the commander in the execution of the latter's will. In one case there will be the need of collecting certain estimates in advance in order to give the commander an exhaustive report on the situation of his own units; in another case, estimates of enemy actions and intentions may have to be submitted; in a third case, there may be need to visit units and to check on the spot information of the situation. The Chief of Staff should be ready at any moment to give the commander necessary information and to anticipate his possible desires. These latter emanate from the commander's tactical intentions, the knowledge of which is the direct duty of every Chief of Staff.

The role of the Chief of Staff and his duties in the control of forces are wide and many sided. When the Chief of Staff tries to do all the work himself, he loses sight of the main thing and skims over the top. Those Chiefs of Staff who are unable to depend on the work of their subordinates to organize their time rationally and provide work for every staff officer are always kept busy—they keep running the whole day from place to place, but their work does not move forward. Instead of assigning concrete tasks for definite periods of battle to the G's and chiefs of special staff sections, the poorly organized Chiefs of Staff direct them by snatches, and give their instructions in passing by.

The principal shortcoming of some Chiefs of Staff is in being poorly informed of conditions under which the battle is taking place, which is caused by the lack of perseverance in securing information. This deprives them of the ability to properly analyze the situation and

make appropriate decision, introduces interruptions in liaison with forces in the field, prevents them from correcting mistakes committed by subordinate commanders which thus prevents restoring in time the cooperation between the various arms which may have been disrupted during the progress of the battle.

In headquarters where work is poorly organized, information on the situation is inexact and does not reflect truth. In order to conceal from the commander their lack of information the chiefs of such staffs are sometimes too ready to give credence to any information which may accidentally come to them. They care little for checking such information by the various available sources, and they are capable of reporting it to their commander without having the information examined at their headquarters. The direct duty and obligation of every Chief of Staff is to uproot all falsehood and deceit, to severely punish those commanders who are capable of operating with information known to be untrue. At the same time the Chief of Staff must by his own conduct give an example of truth and, by the irreproachable organization of the entire activity of his headquarters, prevent the possibility of infiltration of any unchecked information.

Chiefs of Staff are the purveyors of military perfection. In them, more than in any one else, there must be inherent the sense of the new in the technique of tactics and in the employment of all types of matériel. They are the closest and most zealous assistants to the commanders in searching for such forms of combat which conform in fullest measure to the experiences of the war and the varied conditions of the theater of military operations. They must fight against all set patterns and routine in the work of their subordinate staffs and commanders. Every Chief of Staff of a force of all arms, or a staff of a particular arm, must constantly consider the art of field command and help the commander to introduce into practice better methods of warfare and tactics perfected in actual war experience. Acting in this manner Chiefs of Staff will be better able to organize cooperation between the various arms and achieve uninterrupted control of forces. Chiefs of Staff must become actual assistants of the commander in the organization of combat, and the agencies which they head should become the real brain centers of the units and forces of the Red Army.

The Most Important Problem of Academies of All Arms

By

COLONEL G. ABAYEV, *Russian Army*

[From a Russian article in *Krasnaya Zvezda* 8 May 1942.]

In the Soviet military establishment, the Academy of All Arms—of which there are several—is a school comparable to the Command and General Staff School.—THE EDITOR.

Our academies of all arms* are called upon to perform a very responsible and important mission. They are charged with the task of training valuable commanders for units of the combined arms, whose role is particularly important. The commander of a unit of all arms organizes combat and combines in it the actions of infantry, artillery, mortars, tanks, aviation, and engineer elements, merging all these into the one common effort directed towards the attainment of the mission at hand. Cooperation is the foundation of victory in the modern combat and operation.

Comrade Stalin's order on the preparation of commanders for units of the combined arms places upon our academies the duty of exerting even greater efforts directed towards the training of command personnel. These schools should turn out commanders able to organize combat of all arms in a masterly fashion.

The People's Commissar of Defense, Comrade Stalin, recently in a special order concerning the preparation of commanders of units of all arms, has pointed out that the commander of a force in which all the arms are included is entrusted with the task of combining in combat the actions of infantry, artillery, mortars, tanks, and aviation. Consequently, the commander of a unit of all arms, in addition to a firm knowledge of combined arms tactics, must possess also elementary knowledge of artillery, mortars, tanks, aviation, and engineers in order to be able, on the basis of such knowledge, to assign missions to the individual arms, combining all of them into an integrated effort in combat. Only on the basis of such knowledge will the commander of a unit of all arms be able to organize cooperation properly during the battle and thus assure the success of the given operation. It is just such a commander that should be turned out by our academicians.

At the present time the greater part of students at our academies of all arms are commanders with battle experience secured during the present war. They are men who have led units and groups of units of the Red Army in battles at Moscow, Rostov, Len-

ingrad, Odessa, Sevastopol, and in the forests of Karelia against the German fascist armies. They are now perfecting their knowledge in order to fight the enemy with still greater success upon their return to troops. Of course, such a type of student body creates favorable conditions for the work.

Academies of all arms have received precise programs of instructions drawn up on the basis of experience of the present war. These programs outline the requirements and the exact number of hours prescribed for their mastery. They fully provide for the preparation within short time of a valuable commander for units of all arms.

Of each academic chair and of each instructor there is required the constant solicitude for a high standard of instruction. This imposes upon the instructors the duty of thorough thought in the preparation of instructional material, with particular stress on the consideration of whether the material corresponds to the demands of modern war.

It is also important that the work of the students in mastering the requirements be based on a creative approach. Run-of-the-mine methods and standard patterns have nothing in common with the art of war. They should be banished without mercy. It is, of course, understood that along with this the students should be taught the automatic nature in the employment of certain definite technical methods in the preparation of tactical documents, handling of matériel, use of vehicles, etc. Moreover, it will be well if the academies will supply the graduates with reference tables and sample forms of combat documents.

The greater the degree of concordance between the instruction and latest combat practice, the higher will be the success of such instruction. All efforts must be directed towards collecting material on the experience of the current war and familiarizing one's self with such material. The careful analysis of battles and operations reveals a mass of new values and conditions. All that is of value must be put into practice without delay and with boldness.

The practical utilization of the experiences of the present war is the foremost duty of the academies. These institutions should become laboratories where the student would be able to put his own combat experience to a final analysis, where he would benefit by the experiences of others, and where he would be supplied with sufficient theoretical material for

* Schools in which the technique of employment of the combined arms is taught.

his own future activity as a commander of a unit of all arms. Many of the instructors at the academies have themselves had experience with troops and were in action. Thus, they have a store of knowledge which helps in understanding war. This enables them to build theoretical situations upon modern combat experience.

Also of great importance is the constant contact between the academies and the central branch offices of the Red Army.† These offices are also called upon to participate in the preparation of commanders of the combined arms. They prepare instructional material in accordance with the program of instruction. They should also provide the academies with as great

† Branch offices are central offices corresponding to our former chiefs of branches.

a quantity as possible of information containing the experiences of current battles, even though such material may still be quite raw and insufficiently digested. The academies must immediately study this material, extract from it all that is of value and incorporate it into the teachings.

In his order of May 1, Comrade Stalin has again stressed the tasks placed upon commanders of units of all arms. They are: "to perfect the technique of cooperation of all branches of the army, to become masters of the art of leadership, to show the whole world that the Red Army is capable of performing its great liberating mission!" The duty of academies of all arms is to exert all efforts in order that the commanders they graduate fully answer these requirements.

Boats of the Japanese Landing Force

By

LIEUTENANT COMMANDER R. C. D. HUNT, JR., U. S. Navy

Japanese amphibious operations to date have employed means and methods that are deserving of our careful scrutiny. They have in every instance indicated considerable preparation, and the landing boats used by their offensive forces seem to have been well suited to the job in hand. The typical Japanese procedure in landing force operations seems to cover about 5 miles of beach. A line of destroyers and gunboats forms about a half mile offshore, with a heavy cruiser or battleship about 4 miles beyond the line of the destroyers. Two groups of transports usually remain between these destroyers and the heavier warships. An aircraft carrier takes up a position between the two groups of transports. When preparations are completed, many barges, with a capacity of about 150 men each, head for shore. Each barge is armed with two or three machine guns. Naval vessels open gunfire support upon the beach areas, and they can also deliver effective anti-aircraft fire, which is extremely heavy up to about 4,000 feet. Pursuit protection, machine gunning, and observation are provided by the aircraft carriers and landing fields already established, if available.

The landing-craft carrier used by Japanese invasion forces is the special type of transport very similar in construction to a whaling depot ship. From it, landing boats loaded with men and material are slid into the sea through side hatches. These Japanese troopships vary in size

but the majority observed have been between 250 and 300 feet in length. The following six classes of landing boats are described. They have been successfully used by the enemy to get his infantry and artillery ashore in the minimum time with the minimum casualties.

Type A landing craft is a large open boat with twin keels to provide stability after grounding. It has a landing ramp on the bow which flaps forward onto the sand, enabling guns to be wheeled off. The loaded mean draft is slightly over 3 feet. The coxswain and the engine are usually protected by a bullet-proof shield. This type of boat is used by the main landing force, utilizing artillery and mechanized troops. The over-all length is about 50 feet and the beam about 13 feet. It has an estimated capacity of 120 men fully equipped and may be powered with either gasoline or Diesel engine, giving a speed of about 10 knots.

Type B is a small open boat similar in construction to the ordinary steamer lifeboat, and when fully loaded draws 2½ feet. These boats hold 60 men. Their speed is about 9 knots. They carry a light machine gun in the bow, and may also be equipped in some cases with a bullet-proof shield.

Type C is an armored motor launch, which carries an anti-aircraft machine gun and two machine guns or heavier cannon. These craft make up to 15 knots speed. They are employed by the enemy

for close support of landing infantry, maintenance of communications, and reconnaissance. These launches have a length of about 40 feet and a beam of about 13 feet.

Type D is used to supplement the large *Type A* open boat. It is built solely as a towboat, and has a wooden hull, similar to a standard motor launch. It has a beam of 10 feet and a length of about 30. It has a speed of 8 knots when fully loaded.

Type E is driven by an airplane propeller, for use in shallow water, streams, creeks, small rivers, etc. Draft is about 2 feet. There is a shield and a machine gun in the bow. Part of the forward underwater body rises above the water, and the total length is 50 feet with a beam of about 10. The steersman sits well forward.

Type F is divided into two classes, the larger 40 feet long, and the smaller boat 30 feet in length. Both sizes are believed to have a beam of 12 feet. These boats are constructed of steel plates, with a metal shield mounted in the bow for protection. A machine gun may be carried forward. This craft does 9 knots.

These craft are used by the Japanese to secure footholds on the beach from which infantry can reduce beach defenses and procure an area along the shore protected from small-arms fire and grenades, so that further waves of boats can be beached without too severe losses.

(U. S. Naval Institute Proceedings)

Self Preservation --The Law of the Jungle

By
FRANK W. LANE

This article is reprinted from the Royal Air Force Quarterly of September 1942, where it appeared under the title of "Bush-Lore For Airmen."—THE EDITOR.

Imagine you are a pilot stationed somewhere in the immense battlefield now drawn up in the tropics. You have made a crash-landing in jungle or forest-land many miles from any native dwelling. What would you do? Would you give yourself up for lost or make a blind and unintelligent attempt to stumble back to your own lines?

The two greatest dangers you will have to face are fear and exhaustion. Wits and water—if you can keep the one and find the other and follow a few simple hints, the odds are strongly in your favor of coming through to safety.

It cannot be too strongly emphasized that after picking yourself out from the remains of your airplane, you must stay where you are for a while. *Sit down.* Your airplane is your one and only landmark. In thick country especially it is necessary only to take a few dozen steps to be completely lost. And once you realize that, panic or "bush-madness" seizes you and you are as good as dead.

Therefore stay put for a while and think things over. Sit and smoke a cigarette. Remember two things must be conserved at all costs—energy and body moisture. Therefore no attempt should be made to move about until the main heat of the day is past. Mid-afternoon is quite soon enough to start moving. In the morning a start can be made as soon as there is sufficient light and traveling can be kept up until about ten. After that, no further trekking should be done until three o'clock.

But on this first day no move at all should be made until the mad desire to plunge heedlessly ahead has died down. Don't stand up until this fit is over. I have labored this point because it is so important. *Overcome panic and you have a fifty-fifty chance of winning through.*

Finding Water

If to the saving of your wits you can add the finding of water your chances of survival go up enormously. With water you can live and move for a week; without it you die in the tropics in a day or two. But how to find water in a completely unknown tract of country—there's the rub!

First, water is most likely to be found downhill. You can therefore make a tentative excursion in that direction. But as you go away from your crashed airplane, which is for the present your base camp, blaze a trail so that you can find your way back again. There are many things on that airplane you will need before you are through and you dare not run the risk of mislaying it.

Primitive trail-blazing can be done in several ways; by beating the scrub down with a stick, by breaking down small branches; or by tying bundles of leaves or grass to branches or sticks and using them as bearing marks.

The way to use these bearing marks is to set the first one up within sight of the base (i.e., the airplane), the next

within sight of the first mark, keeping the two in line. The third and subsequent marks are similarly set up in line. The nature of the country will determine how close to each other the marks should be.

All this takes time, but no time or trouble is too great to blaze the new trail straight. At all costs you must thwart the natural tendency to trek in a circle. Such circling has only one end—bush-madness preceding death.

In the search for water a sharp lookout should be kept for various tell-tale signs. Towards evening flocks of birds can often be seen winging their way towards water. Where wild game is plentiful (indicated by their droppings and spoor) there is sure to be water. It is sometimes possible to pick up a game-trail leading directly to water. The presence of flies is often an indication of moisture.

Rocky pockets in valleys sometimes hold a pool. Water can also be found in forest dells and even in rock and earth pockets in the desert. Beds of apparently dried-up watercourses should be examined carefully. Lift out some large stones and moisture may be seen underneath. Sandy tracks in the bush, if dug into for a foot or so, may yield some water.

These sources may provide only a trickle but that is enough to be going on with. Remember you do not need to drink much water to quench thirst; a mouthful to moisten tongue, lips and throat is generally sufficient. An Army doctor with great experience of tropical life says that when on the march just rinse the mouth out with water but do not swallow any of it—or only a very little. But he advises that a large quantity should be drunk between sunset and sunrise if you are engaged in physical exertion.

A woolen cloth, or failing that a bunch of soft moss, will soak up any moisture that may be found in shallow hollows, and will act as a partial filter as well. African bushmen carry three-foot hollow reeds as drinking tubes. They insert the tubes into the sand of the desert and by some uncanny instinct almost invariably tap an underground water supply.

But even if a direct water supply appears unavailable the bushed pilot need not despair. Capt. W. Hitchens, writing on this subject with special reference to Africa, says, "The African bush is studded in many parts with huge gaunt-limbed 'baobab' trees, with immense squat contorted boles. These trees are veritable water-tanks, for their trunks are often hollow, and in them collects the dew and rain which falls on the wide, broad spread of their fat branches.

"Natives in Africa tap those trees like cisterns, driving a wooden peg like a spigot through the bole, drawing what water they need and replacing the peg as a bung. Even in the 'waterless' desert grow cactuses which store water in the fiercest droughts. Thirsty nomad tribes cut the 'hands' from these cactuses, slice off the top, and drink the water from its natural cup."

In other parts of the world equivalents of the baobab and cactus can be found. Large bamboo canes sometimes hold considerable quantities of water. A water-providing bamboo can be detected from dry bamboos by giving it a sudden shake. It then gives out a hollow, gurgling sound which is easily recognized.

To obtain the water it is necessary only to tap the joint or cut down the bamboo. Bamboo juice is an agreeable and refreshing drink and the natives believe it to have a health-giving effect on the constitution.

In some tropical forests a species of large pitcher plant grows. The natural cups of this plant contain a fair amount of water. But the cups also collect insects and creeping things which must be removed before quaffing the liquid. If any coconut palms are near they will provide both food and drink. Nuts in their green or immature stage are best.

Even if all these water-providing expedients fail (and it would be very unlucky if none of them provided at least some moisture), you need not utterly despair. Dew may be trapped. Large leaves make good dew collectors. And remember one big-game hunter kept himself alive by shooting zebras and drinking the water in their stomachs!

To carry a small water supply you can improvise "bottles" out of thick bamboos, hollowed branches or gourds, or even from the bladder of an animal.

The need for food comes a long way after that for water. I once lived for thirty-two days on very little else besides liquids, including nearly a fortnight on water alone! Remember, the craving for food is mostly habit, and after the stomach has been deprived of food for a day or so that craving diminishes. It is the *thought* that you will starve which is the greatest trouble in the early days of enforced hunger. But the body contains within itself a reserve of fat which it can draw upon and keep you going for a week at least. Nevertheless, you will need food within that time unless you can easily get back to your own lines in a day or so.

Edible Vegetation

To the bush-wise trekker the wilds provide a fair supply of wild vegetables and fruit. Wild cucumbers, potato-like tubers, young bamboo shoots (sliced and cooked they are like cabbage) and bamboo seeds (they are eaten like rice in some countries), various edible roots and bulbs all provide good vegetable fare.

Writing of the palms, Sturtevant in *Notes on Edible Plants* says:

This is one of the most useful group of plants in tropical countries. The crown of the trees when tapped give a slightly aromatic and sweetish fluid which makes a refreshing drink, or, if it is allowed to stand, a wine. Many of the fruits possess an edible pulp or kernel, while from others may be extracted an oil that is useful in cooking. The central part of the stems of some species is soft and contains a sago-like substance. The soft young

buds furnish a green that may be eaten either as salad or cooked.

A word about mushrooms. Fresh, true mushrooms are an excellent food, but unfortunately there are "bogus" mushrooms which can cause serious trouble. If any of the three following characteristics are present in a suspected mushroom do not eat it: a cup or remnants of a cup at the swollen base of the stem; a ring around the middle portion of the stem; or white gills on the underside of the cap. Also avoid a true mushroom that shows any signs of decay. The best advice about "mushrooms" is to avoid them if you are in any doubt about either their age or species.

And what of fruits? Tropical countries are particularly rich in these. Figs, palm nuts, wild oranges and plums, berries and various nuts make an admirable dessert. I would suggest that every man who is going to the tropics should visit a good botanical garden and make mental note (and a sketch as well) of the main edible and water-giving trees and plants of the region to which he is going.

It should not be beyond the wit and skill of a pilot to help himself from the abundance of game, fish and fowl which is to be found in tropical climes. If you still have a firearm you should experience no difficulty, but even without such a weapon you can still kill for the pot.

Hunting for Game and Fowl

Small deer can often be brought down by the dexterous throw of a knobbed stick. The Basutos bring down game by merely throwing stones. Birds can sometimes be knocked out of trees by hurling a home-made club at them.

But best of all primitive weapons is the bow and arrow. And it should not be too difficult to make one. A pliant sapling provides the bow, long plaited strips of green bark the string, and arrows can be fashioned from straight sticks.

Warren H. Miller, who was at one time editor of *Field and Stream*, the great American magazine of the outdoors, has described how to make a much more elaborate weapon from the materials which the woods supply. The following account is adapted from what he has written in his book *Camp Craft*:

Choose a stout limb of oak which is already somewhat bow-shaped and taper it down at its thick end with a knife or hatchet. Failing these a sharp stone will do as a makeshift. Then make two deep notches at the ends and use stout cord if you have it, or if not the best available bark or tendril as a string.

Natural arrows can be made from the small shoots of trees or spruce limbs. They should be peeled, straightened and then hung over a small fire to season with a heavy weight at their lower end. Good arrows can also be cut from dry pine or cedar, spruce or ash. They can be finally fashioned with a knife.

Feathers can often be picked up and these, or even birch bark, can be used as vanes to make the arrows fly true. Arrow heads are best made from nails, or a piece of metal from the wrecked airplane. Ideally, a nail should be driven into the front of the arrow and the barb fashioned by heating in a fire, from the nail-head. But for small game and birds, arrows with heads made of bone or even thorns are quite effective. Hard woods, when sharpened and burned, give quite good heads. Indians make effective ar-

rows from straight cane stalks with a hardened point and tied-on feathers.

In addition to killing by the use of projectiles, it is possible to trap and snare both bird and beast. African natives catch ducks by putting a piece of meat on a sliver of wood attached to a line and floating it on a piece of wood. A bird swallows the meat, the sliver of wood acts as a hook and the duck is hauled in.

Game birds and small game can be caught in a simple native trap which is set near an animal trail or where birds are known to congregate. The trap consists of a springy sapling fastened to a running noose of plaited fibre. The noose is held in a circle by little sticks and kept taut against the pull of the bent sapling by a trip-stick.

A few grains of food are placed around and inside the noose. Sooner or later a bird will dislodge the trip-stick, the noose will draw tight about the bird's neck and the released sapling will swing the capture aloft to await the trapper's collection.

Sometimes a partridge or possibly a quail can be run down and dispatched by a blow from a stick. In Paraguay an Indian will sometimes kill a partridge by waiting until he hears it call and then he will start to trek round and round it in ever-narrowing circles. Eventually he hurls his throwing-club at the bird and scores a bull's-eye (or perhaps bird's-eye would be more accurate) nearly every time. The Indians say this method of approach hypnotizes the bird.

Should the large fruit-eating bats be in the vicinity they can be killed and eaten. According to an Australian cookery book the flesh of these bats tastes just like young pork. In Samoa the natives catch these bats by fixing a prickly bush to a long pole and striking at the bats as they fly past. The bats' wings become entangled with the bush and the animals are brought to the ground.

Another way to capture these bats is to light a smoky fire under the roosting trees and thus stupefy the bats. As they fall to the ground they can be killed by a stick.

Fishing for Food

Well, so much for primitive hunting. But there is still the equally ancient method of getting food by angling. The hook can be provided by a thorn lashed to a tiny piece of wood pointing back at a sharp angle, a sharp bird bone or a hardwood sliver. A pliable sapling will serve as a rod. Failing string, the line can be fashioned out of a vine, trailing creeper or even fine strips of bark. A piece of fruit, vegetable or lump of meat will serve as a bait.

If you are a trout fisher, you can still ply your trade by a jungle stream. In place of the raw meat, affix a grasshopper to your home-made rod and line and skitter the insect over a likely pool. But with all such improvised fishing tackle it must be emphasized that the fish must be tired out on a taut line. Heavy fights and quick jerks must be strictly barred.

Should such fishing take place in the New Guinea region the angler may even provide himself with a ready-made fishing-net. The New Guinea spiders make gigantic and very strong webs. The natives have discovered this fact and they bend a bamboo into the shape of a large tennis racket and leave it in the bush at a place where spiders are numerous. A spider finding a convenient framework at hand, uses it as a support for a web.

The mesh of the web varies from an inch square at the circumference to one-eighth of an inch at the center. The natives thus get a ready-made fishing-net capable of catching fish up to a pound in weight. When nets made of several thicknesses of web are used fish up to 4 pound can be secured.

Insects As a Food Source

Insects should not be overlooked as another source of food. In many parts of the world insects are eaten avidly, and if only you can overcome the Briton's aversion to creepy-crawlies, you too will find them quite edible. Locusts, ants, termites, (especially the large, fat queens) and even caterpillars and moths can be eaten.

Let us assume that you have now managed to get something for the pot. The next problem is a fire with which to cook it. And without matches and the other civilized amenities for fire-making you may be at a loss how to start a blaze.

First gather some dry sticks, twigs, brown grass and fallen brittle leaves. If you still have a fire-arm and cartridges you can soon have a fire. Take a cartridge and remove the bullet. Put some of the powder among the tinder, and, holding the muzzle of your firearm about a foot away from it, fire into the tinder. This procedure should result in a small fire which can be easily built up.

Even without powder a fire can still be made. If you have a camera or watch, retire to a sheltered sunny spot and use the watch-glass filled level with water, or the uncrewed camera lens, as a burning glass on the tinder. Failing both camera and watch you can use a bottle or polished metal object. Remember the sun in the tropics is much more fierce than in Britain, and a fire by these means is therefore more easily made.

Apart from utilizing the sun's rays, how else can a fire be started? With a knife or similar metal object sparks can be struck from a flint. These can often be found in a brook or river bed. Sparks can also be struck into crumpled tinder by kicking on quartz with a nailed boot heel, or by chipping granite, flint or quartzite rocks together.

Even if all these methods fail there is still the ancient fire-stick way of starting a fire left to you. Take a stick of hard wood and make a hollow in a softer piece of wood. Around the hollow place some fine tinder. The hardwood stick is then placed in the hollow and twirled very fast between the palms. If all goes well smoke will appear in the hollow in a minute or so, followed shortly after by fire which catches the tinder.

It must be admitted that to start a fire by this means is not easy. But the famous naturalist, Ernest Thompson Seton, has lit a fire with fire-sticks in thirty-one seconds and the African pygmies will have a fire going in two minutes even when the wood is sopping wet.

The Night Camp

The place to build a fire is in a clearing but be sure you don't choose a game path. You don't want a large pachyderm interrupting your night's slumbers. No big branches should be overhead from which unwelcome visitors, possibly overcome by the heat and smoke from below, can drop in as uninvited and unwelcome guests.

Professor Brounner gives the following advice regarding camping sites in India and Burma:

Avoid camping near slow-running water—mosquitoes favor such places

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and so do rats. Pitch your own tent (or make your own fire.—F.W.L.) on the northeast corner of a grove of trees and, if possible, on ground which will not receive surface drainage during a thunderstorm.

Once you have a good fire going you have an invaluable ally. A cooking or boiling pot can be made from a calabash or gourd lined on the outside with clay. With this you can boil all water and cook as well.

A fire is a very comforting companion. You won't feel so lonely or hopeless within range of its cheery blaze. At night its flare may be seen by friendly natives and thus be the means of your rescue. You can also throw, or shoot with your bow, blazing brands high in the air as signal rockets. Special signal arrows can be made from straight sticks with tufts of dry grass tied round them. When the grass is set alight you have a rocket which can be seen for miles when shot high into the air. But if you know or suspect that you are in hostile territory it will be well to screen the fire as much as possible.

A fire also acts as a protection against dangerous beasts. I must say here that dangers from such a source are likely to be the least of the perils with which you will have to contend. School yarns and adventure tales notwithstanding, the average wild animal will seldom attack unless it is provoked or frightened or with young whom it thinks you are about to molest.

If thorn-bush grows near you can make a stout little stockade round your fire. Pile the brush to a height of five or six feet and three or four feet thick. For additional security you can put strips of paper, if you have any, on a branch. Strange as it may sound, this will act as an effective "scarecrow" to dangerous marauders. With such a barrier outside and a blazing fire inside, you will have little to fear from your wild companions of the bush.

Should a lamp be desired even this can be provided from the wilderness. A gourd filled with animal fat and fitted with a twisted fibre wick or strip of clothing will give quite a fair light.

To give you some idea of just how much at home a seasoned bushman can be when lost in the wilds, here is a quotation from that greatly experienced African hunter, Capt. W. Hichens, to whom I am much indebted for help in the preparation of this article:

One of the best meals I ever ate was cooked over a bush camp fire on a night when I was lost in the Tenda-guru Forest of Tanganyika. It started with an *hors d'oeuvres* of grilled brains, passed on to soup, grilled bones, encouraged with wild red pepper and included a roast haunch of beef and a savory of baked kidneys spiced with cashew nut—all provided by a young eland bull which I was fortunate enough to shoot and by the wild vegetables of the bush.

On that occasion a leopard skull picked up in the bush and filled with eland oil served me as a lamp, a pithy grass stem burning well as a wick. In the same way, from what the bush will provide, beds, tables, chairs, boxes and even clothing, can be made, as men who have served in African campaigns will know. One of the most comfortable beds is a frame of bamboo or bush poles, thonged across with buckhide and matted with grass. It can be made in half an

hour; and a banda or pole-and-thatch hut to serve as a bedroom can be built in the bush, giving shelter from rain and sun, in almost as little time.

Miscellaneous Points

And now, in conclusion, for a few miscellaneous points. On trek only two meals a day should be taken. A light one in the morning and your heavy meal at night. You can carry a supply of the very sustaining biltong, or smoke-dried meat, with you and chew a bit of this at mid-day if you feel the need of a "bite."

Eat slowly and chew well. Avoid as far as possible excessive fatigue. If you can manage a bath or wash-down once a day, by all means take it. If you are troubled by clouds of flies light a green wood fire. The smoke will keep the little varmints at bay.

Don't recklessly throw away any clothing or mosquito nets you may have with you. You may be very glad of them before you are through. If you have lost your tropical body-belt improvise one from puttees or some other woollen garment. Your waist and abdomen should always be covered when you lie down in tropical countries. A stomach chill can easily be caught unless this precaution is taken, and that, in the tropics, is serious—more especially for a lone, lost, bushed pilot!

At all times beware of the sun. If by chance your pith-helmet has become lost or damaged don't move an inch from the shade until you have improvised something to cover your head. Clothing, fabric from your wrecked airplane, or woven grasses, etc., will provide fair protection. A large leaf, trimmed and tied round your forehead, will partially protect your eyes from glare. And don't forget the earlier advice to stay put during the greatest heat of the day. This is a rule which nothing but the most vitally urgent considerations should cause you to break.

Finally, a word about direction-finding. You should have some idea of the direction of your own lines. If not, strike out in the direction you think most likely will bring you to them. If you have a compass steer by that. If your compass is smashed or lost use sun and stars as your guides. Remember also the home-made direction marks I mentioned earlier.

Keep a straight trek. At night draw a straight line on the ground in the direction in which you have been traveling so that in the morning you will know which way to start. If you find a river, follow it. Where rivers run, men live.

If ever you have the misfortune to crash-land in forest, jungle or bush I hope you will be in a better position to answer the questions with which this article started than you were when you started to read it.

[The following notes on this article have been received from Mr. A. W. Duncan, who has had many years experience in the Eastern jungles, to whom the article was submitted by the author. F.W.L.]

You hit the nail on the head in one word—*wits*. Sit down and think. Where an animal can find a living, a man can!

Clothes.—Thick wool or flannel, however uncomfy, is better than all the cotton or gauze in any kind of heat. I don't think anyone need fear the sun unless one has a "warning"; if one does—**TAKE HEED**. In twenty-five years of tropics I never put on a body belt. If

once worn *never* leave off. Thick clothes keep mosquitoes at bay—a thin cloth over the head while sleeping will do the rest.

Water.—Little to add, I think. In any tropical bush (Burma, Malaya, etc.) there are creepers, thick as a man's arm—rough barked, hanging—cut one through, nothing happens, but cut in *above* and water flows *always*. As you say, with water *only* a man can live a long time. "Travellers'" palms always have water. Any man traveling or flying over that sort of land should have a firearm of sorts, even a pistol—Webley or Colt revolver, *not* automatic—not less than .38 calibre. This will give food and fire. He should also take string, wire, and a simple tool or two, including a "trenching" or child's garden tool (3 in 1). Watch birds, beasts and insects—food, water and honey may be spotted. (*Wits*.) If one sweats, moisture *must* be replaced sometime or heatstroke will result. Lotus plants common—seeds very good. (In the watering-can "rose" part of the plant.)

Food.—All dead fallen palms have "palm-grubs." Ivory with brown points, very good—like roasted nuts. All palms have "cabbage" (crowns), a food and drink. Rats, mice and lizards, all edible *if necessary*! Visit to a Botanical Garden *very* sound. Even if possessed of a firearm, a bow *not* a bad standby to save cartridges. Any bit of steel (umbrella stays) make a good bow—arrows are easy. The "sliver of wood" (original fish hook) *very* sound. It will catch anything, including crocodiles! For fish, nearly any man can improvise a snare—the cone for choice. Easy to set and needs no bait. Snares for rats, mice, birds and lizards easily made and easily set in "runs." The Kalong, or flying-fox (fruit-bat) easily killed and good to eat.

Sleep Well Off Ground.—Four stout forked sticks make legs of bed, lacing can be done with rattan or creepers or by stout sticks, along and across. Grass mattress very comfortable. Comfort and freedom from stings and bites *very* important.

Coffee, with or without milk, toast and a glass or two of curacao (or crème de cacao) at 6 a.m. will keep a man going, *day after day*, till 6 p.m. (This is not likely to be had in accidental forced landings! Sir Samuel Baker's recipe, and a *grand* one.)

A tip to all fair-haired people might be wise. There is no doubt that fair people are more susceptible to damage from the sun and from insects, particularly mosquitoes, also from leeches, than are dark folks. Why this should be I don't know—something to do with pigments, very likely; but I have seen it so often that I have no doubts on the matter. You touched on the "wild beast" subject, rightly pointing out that danger from them is practically nil. I cannot think of anything else to add to your very complete notes. The great thing is that anyone going to such places or running the risk of being stranded should, if possible, carry a firearm, compass, string, a tool, and wire as *real* necessities.

Your article has everything that I can think of (and more).

It is easy to say "Don't get into a panic!" But the "jungle" is a much "safer" place to be lost in than, say, the Australian "bush" or any desert.

Tank Destroyer Employment

PREPARED FOR THE MILITARY REVIEW UNDER THE DIRECTION OF
MAJOR GENERAL ANDREW D. BRUCE, *United States Army*
Commanding, *The Tank Destroyer School, Camp Hood, Texas*

This discussion is designed to give the general picture of the characteristics, missions, and fundamentals for the employment of *Tank Destroyer Units*.

In the summer of 1941, the United States went out wholeheartedly for the *Tank Destroyer* concept of killing the enemy tank. We firmly believe that bold, aggressive, decisive maneuver promises tactical surprise and offers the best method of destroying enemy tanks.

The tool or weapon we are developing to do this job is the *Tank Destroyer Battalion*, a unit peculiarly organized and equipped to do a specific mission. Its primary mission—the attack and destruction of hostile tanks.

Such a unit must possess certain special characteristics. Our battalions, as organized, can deliver tremendous fire power from weapons capable of destroying tanks. They now have self-propelled weapons. Their role on the battlefield requires them to possess greater mobility, maneuverability, and vision than the tanks they are to combat. Our destroyers also provide the crew and vehicles with armor protection against small arms fire, bomb fragments, shell splinters, etc.

The *Tank Destroyer Battalion* is a task force. Organically it can provide itself some protection against aircraft, against hostile foot troops, and it can supply and maintain itself. But, being a specialist for a special job, it must be stripped for action so as to accomplish its own peculiar mission. It is not organized to combat or protect itself against *Cavalry* or *Infantry Forces*. Consequently, its normal employment should be in conjunction with other units. It can operate independently in emergencies to destroy small groups of enemy tanks which have broken loose from their main force.

The primary objective for our *Tank Destroyers* is the hostile *Tanks*.

This objective may be hostile tank columns marching on roads which can be reached by a wide maneuver. Perhaps the *Tank Destroyers* can reach this hostile column through an existing hole in the enemy lines or through a hole made by our friendly troops.

Again, the objective may be a hostile tank assembly area, located by air or ground reconnaissance and accessible in the same way as was the column. In many cases it will be hostile tank penetrations or attacks which the destroyers will strike in flank at the point or shoulder, wherever the best tactical advantage is indicated. TD objectives are any hostile tank formation whether it is getting ready to at-

tack, reorganizing after an attack, reinforcing other attacking units, or attempting to exploit a breakthrough.

I don't want you to think that *Tank Destroyers* feel that they can ignore the normal antitank set-up of the combat area. On the contrary. *Tank Destroyer* combat and antitank combat must be coordinated. It is hoped that these coordinated means will break up and destroy most tank attacks. However, it is possible that a large tank attack, properly supported, may break through these coordinated means. In this case, we feel that the static antitank elements certainly can disrupt, delay, and canalize the tank attack, thus creating conditions favorable for counterattack by highly mobile reserves. Reserves capable of destroying tanks. *Tank Destroyers*, a powerful mobile reserve which seek to strike and destroy the hostile tanks early, preferably forward of the division artillery positions.

There are numerous suitable secondary objectives for *Tank Destroyers*. On *Bataan* a small force of *Tank Destroyers* proved their worth many times over in the destruction of hostile landing barges.

The three-inch gun has great muzzle velocity, which makes it particularly suitable for the destruction of permanent land fortifications or the attack of heavily fortified areas such as cities.

Tank Destroyers are mobile; they can be concentrated rapidly. They have many automatic weapons. These factors indicate their suitability for a mission against hostile paratroops or airborne troops.

Tank Destroyers can accomplish some indirect fire missions. However, their sights, the limited elevation of their guns, and the flat trajectory of the projectile greatly restrict their ability on indirect fire missions.

When considering secondary objectives for *Tank Destroyers* remember these factors: Their primary role is the destruction of hostile armored vehicles; and no matter how juicy a secondary mission may seem, such a mission may so disperse a TD battalion that it cannot accomplish its primary mission.

Remember the ammunition situation. Can we afford to expend this ammunition on the secondary mission?

Our *Tank Destroyer Units* carry a limited supply of ammunition. A fundamental rule here is that the organic TD load should not be touched for secondary missions. Ammunition required for secondary missions should be supplied by the supported unit.

Remember, also, the organization of a TD bat-

talion. It is streamlined for its primary role and cannot fight strong *Infantry* or *Cavalry*.

The ordering of a secondary mission is a command decision and must be weighed in the light of all available information on hostile armored forces.

Tank Destroyer Battalions seek opportunities to operate against the head, flank, or rear of the enemy tank forces. It may do this by striking the head, then a flank, and then the tail. Or, it may do it successively by hitting the head; then while still engaging the head, hit a flank; and while still engaging both the head and the flank, hit the tail. Most decisively of all, it may hit the head, flanks, and tail simultaneously.

Initially, *Tank Destroyer Battalions* are held in concealed positions far enough to the rear so that an efficient use of the road net will permit their employment over a wide zone. They may be moved closer to the probable combat area as information comes in and the tank threat is determined so that they can use their mobility to strike in mass with surprise from an unexpected direction, at an unexpected time, with unexpected speed and power.

Tank Destroyers, following the concept of surprise employment, generally employ their maximum fire power initially. Small or no reserves are held out. Fire power is shifted to maintain the continuity of the attack and to gain tactical advantages. Shoot and Shift.

Being exceedingly mobile, all plans for employment should be made to capitalize on this capability. Terrain must be selected carefully and intelligently, our plans must fit the terrain, must contemplate rapid shifts that employ deceptive flexible formations, striking the enemy with a combined frontal and enveloping assault. Our plans must be based, from beginning to end, firmly and soundly on Anticipatory Planning. Out-plan, out-maneuver, outshoot the tank.

I. UNIT EMPLOYMENT

a. *Reconnaissance Company*.—Timely, accurate information is vital to proper *Tank Destroyer Employment*. Air and ground agencies must be coordinated and the hostile force found and kept under surveillance.

The Reconnaissance Company provides an organic intelligence agency for each TD battalion. Its primary mission is reconnaissance. Continuous, aggressive reconnaissance, to find and maintain contact with hostile armored forces, specifically the hostile armored force we are to destroy. It keeps the commander informed as to the hostile location, composition, dispositions, and direction of movement.

It may have to fight to gain this information or to maintain contact once the armored force is found. It should avoid serious involvement because such action may pin the company to the ground, preventing it from obtaining important information from an adjacent front.

During the approach the Reconnaissance Company may be used to reconnoiter certain roads, to reconnoiter a zone or a locality. It may be fanned out to the front and flanks from 3 to 12 miles. Hostile strength dispositions and location as reported will determine the distance the company will operate in advance of the battalion and the width of the zone it will cover. When the enemy has been located and contact is imminent, the Reconnaissance Company should operate at minimum distances on narrower frontages. A vague distant threat indicates employment on a wide frontage and at extreme distances.

In addition to the information on the enemy the Reconnaissance Company provides the Commander with incidental information on the condition of the roads, type of terrain encountered, particularly as to the location of suitable assembly areas and routes of tank approach, the road net, communications, and observation.

At night mounted reconnaissance at best is unsatisfactory. During this period the company may be employed as a line of dismounted listening posts. Again it may be pulled back to reinforce the "close-in" security of the battalion position. It can be employed in conjunction with other elements of the command to execute raids on tank parks or assembly areas.

During actual combat, missions on which the Reconnaissance Company may be employed are: acting as decoy or luring hostile elements into the battalion attack position; protecting the flanks of the battalion; reconnoitering hostile flanks, or routes that our anticipatory planning indicates may be used; establishing road blocks to limit hostile maneuvers; assisting in securing assembly areas, rallying positions, rear areas.

A word of caution on the employment of the Reconnaissance Company. If dual missions are assigned, a priority of execution must be indicated by the Battalion Commander. If left to the decision of the Reconnaissance Company Commander, neither mission may receive sufficient attention or the wrong part of the mission receive too much emphasis. It is an unfair responsibility to place on the Reconnaissance Company Commander.

Also remember that without the Reconnaissance Company, the TD Commander is blind, the mobility of the battalion reduced. It is a very serious mistake, we think, for a TD Reconnaissance Company to be employed by a higher commander on missions which separate the Reconnaissance Company from its battalion.

Bear in mind that a good horse can be worked to death. The Reconnaissance Company has a big job, a vital job. It must have an opportunity to rest.

b. *Pioneer Platoon*.—The Pioneer Platoon represents the Engineer support available to the battalion.

On the advance it normally follows close behind

TANK DESTROYER EMPLOYMENT

the Reconnaissance Company on the main routes or route of advance of the battalion. Road repair, bridge strengthening, detour construction, route reconnaissance are some of its primary missions.

Other missions that it may be called upon to perform are the construction of road blocks or mine fields to delay or restrict hostile armored advance or maneuver; assisting other units when necessary, to "mop up" partially destroyed enemy tanks; security missions, as guides.

By and large, pioneer work is its main concern. In addition to the tools and demolitions organically available to the Pioneer Platoon, expedients should be resorted to, and local resources exploited.

Get the Destroyer Battalion to the right place at the right time.

c. The Destroyer Companies.—These units form the backbone of the *Tank Destroyer* combat.

In the advance, Gun Company elements and a Reconnaissance Platoon form the advance guard team. Clearing the way of minor oppositions, delaying, forcing deployment of hostile tanks, giving the battalion time to deploy for tank killing.

The Gun Platoons, having weapons capable of destroying all known tanks, are the Tank Killers. They are the main striking force of the TD Battalions. They engage successively, but normally it is better to engage the gun platoons simultaneously, thus gaining the surprise of massed gun fire. The battalion may hold a company in reserve initially, but only until the desired opening occurs. Then all guns are employed to gain decisive results. Surprise Massed Gun Fire.

TD combat is characterized by rapid shifts of *unengaged* elements to new positions; astute use of terrain to provide battlefield mobility; to provide battlefield protection, to convert the conformation of the terrain to our advantage.

II. TERRAIN CONSIDERATIONS

Terrain has a tremendous influence on *Tank Destroyer* employment. It must be carefully studied, analyzed, selected. Our plans must be made to fit the terrain so that we place the tanks at a disadvantage, allow ample space for the combat, provide concealment facilities for surprise massed gun fire.

By the proper use of our inherent mobility we endeavor to fight on ground of our own choosing. If time and space prevent our getting there first, it may be wise to delay until the desired area is reached.

Briefly, the questions we ask concerning the suitability of the terrain are: is it free from obstacles which would restrict our maneuvers; does it provide ample maneuver room; how are the tanks likely to use the terrain so we can be ready to block them; and does it provide concealment, defilade, observation, fields of fire, routes in and out of positions?

III. AIR SUPPORT

a. Reconnaissance Aviation.—As stated previ-

ously, *Tank Destroyer* employment is extremely sensitive to accurate, timely information and warning service. All reconnaissance agencies must be coordinated and tank warning given a priority status.

Air reconnaissance extends our ground reconnaissance. Reaching out further, it gains time for the *Tank Destroyers*.

b. Combat Aviation.—One typical reinforcing element of armored units is combat aviation. From the hostile armored force point of view the most remunerative target for their combat aviation is a *Tank Destroyer Unit*.

Friendly combat aviation can protect TD units from this hostile air attack particularly in the vulnerable approach phase. It can screen us from hostile air reconnaissance that is bound to be searching for *Tank Destroyer Units*.

Combat aviation can assist in the complete destruction of hostile tanks by attacking hostile tanks with gun fire and bombs during combat or before the forces are engaged. Destruction of bridges, roads, etc. may block hostile forces. It will certainly delay them and may assist in trapping them.

IV. OTHER ARMS

Early in this discussion several reasons were given why *Tank Destroyers* were not suited for employment against infantry, cavalry, etc. Carrying that thought a little further and recognizing the organization of armored forces, we realize infantry and artillery will support large tank attacks. That factor leads us directly to the statement that *Tank Destroyers* are normally employed in conjunction with other arms. Friendly infantry and artillery will protect the destroyers from hostile infantry and artillery while the supporting destroyers go out and kill the hostile tanks. Tanks which otherwise will kill our infantry and artillery.

Other missions, perhaps a deep incursion through hostile lines or around their flanks to hit a located tank assembly area or park, may cause the formation of a composite force; a small task force built around *Tank Destroyer* groups, with sole missions of getting the Destroyers to their objectives.

V. SUMMARY

In summarizing *Tank Destroyer* Employment, we desire to emphasize four factors:

a. Tank Destroyer Combat is basically offensive and is characterized by fire and maneuver to reduce hostile opposition. Movement of maneuvering elements is protected by the fire of other elements in position. The purpose of the maneuver is to gain positions that permit still more effective fire on the enemy.

b. Tank Destroyers must be employed in mass. Tanks will be employed in mass. Therefore *Tank Destroyers*, if they expect to destroy tanks, must be employed in sufficient mass. To disperse destroyers on a cordon antitank system or to place them in

static positions sacrifices one of their basic characteristics—mobility.

c. *Tank Destroyer* units are peculiarly designed and organized for employment against hostile tank forces. Their mission is the destruction of hostile tanks. Don't "fritter" them away on unsuited missions. Hold them ready, in reserve, so they will give the support for which they are intended.

d. Always endeavor to attack with surprise, employing the inherent mobility, maneuverability and fire power to the maximum. Small reserves, massed fire, surprise and deception, speed of action, a change of pace.

VI. CONCLUSIONS

We have discussed *Tank Destroyer Employment*. I would like to punch this thought. We called this discussion *Tank Destroyer Employment*. Not TD's in attack, not TD's in defense, in pursuit, or in the counterattack. Just TD Employment, because we believe that basically, regardless of what the supported unit is doing, our actions will be aggressive. No attempt to stand and slug it out with the better protected tank, but capitalizing on our speed, our shiftiness, our better visibility, we gain positions to attack by fire.

Because Army Administration is a subject which concerns all military personnel whether commissioned or enlisted and because—until recently—there has been no adequate literature on this subject, the Adjutant General's School has published the following manuals, books, and pamphlets which are designed not only for the administrative officer of any arm or service but also for the officer as an individual:

TM 12—250 Administration (Regiment and Company)

TM 12—220 Administration (The Division and Large Installations)

TM 12—225 Administrative Procedure

The Army Clerk

Instructional Pamphlet Number 1—Orders

Instructional Pamphlet Number 2—Travel

Lecture Series—

Number 1 Army Personnel System

Number 2 General and Special Staffs

Number 3 Leadership

Number 4 Administration of the Army

Number 5 SOP for a Regimental Adjutant's Office

Number 6 Military Correspondence

As a result of issuing these publications, adequate literature on Army Administration is now available.

—From a letter by Colonel H. C. Holdbridge,
Adjutant General's Department,
Commandant, Adjutant General's School.

The Defensive

By

LIEUTENANT COLONEL CHARLES H. ROYCE, *Infantry*
Instructor, Command and General Staff School

If you will read military history or the opinions stated by our great military leaders—you will find the conviction that Defense *Cannot* Win a War.

It can't win a war for the same reason that you can't win a football game if the other side always has possession of the ball. You are spending all your time blocking his runs and passes.

Yet every nation engaged in this war has employed defense at one time or another.

Why, then, do we defend if we can't win a decision?

Our FSR indicate that defense is a temporary expedient employed either to gain time or to gain men. Time—for the situation to develop more favorably for the defender, such as building up reserves or supplies or to gain men—for offensive action on other fronts where a more profitable decision may be sought.

For all practical field purposes, it comes down to this: A commander adopts defensive action when ordered by higher authority or when his own situation requires him to bar an enemy force from a certain area for a certain period of time because of an inferiority of means, faulty dispositions, or lack of training.

The defense has certain characteristics which make it effective in blocking a superior enemy. The defender is usually able to select his own battle ground, and the skillful organization of that ground and the careful coordination of his fires give him additional combat power sufficient to hold off a much larger enemy force.

The defender, however, surrenders the initiative to the attacker and therefore is forced to follow the enemy lead. The advantage gained by that force holding the initiative is well illustrated by the Japs in the Pacific. The Japs could pick the *What*—the *When*—and the *How* to attack while the Allied Nations were forced to try to defend all.

Having indicated *why* we defend, let's consider the next important question of *how* we defend.

Our defensive doctrine, as laid down in the FSR, contemplates as the keystone of the defensive area the organization of a battle position, which is held at all costs.

Protection for the battle position and additional depth in the defense are secured through covering forces, which delay and disorganize the enemy advance and confuse him as to the exact location of the battle position.

When the situation and time available permit,

the flexibility of the defense is increased by the organization of a rear position at such a distance from the battle position that the enemy cannot attack it without displacing his artillery. Operations in Europe have already shown need for such positions.

Our scheme of defense is based on 4 general factors:

1. Organization in depth—certainly demanded by the great striking power of the modern offensive. Against a deep defense, an attacker no sooner gains a foothold at one spot than he is forced to fight just as hard to gain the next foothold. Thus the attack loses momentum.

2. Flexibility—that is to say, a defensive framework susceptible of modification and variation, easily adaptable to changes in the situation.

3. Mobility—an organization whose mass is freely and speedily movable through the use of mobile reserves. This does not mean (seen in maneuvers) a front line battalion gets up and moves to the other edge of woods to meet a flank attack. It means the forward essential areas are held rigidly and the mobile reserve maneuvers behind them as a pivot.

4. Last, but by no means least, *aggressiveness*. A defense thoroughly imbued with the spirit of the offensive and whose decisive element is the counterattack.

The defensive Zone is divided into three echelons:

1. The security echelon,
2. The battle position, and
3. The reserve area.

Let us consider each of these echelons in more detail.

The security echelon consists of those troops whose purpose is to obtain early information of the enemy's advance, secure the battle position, and delay the hostile approach.

This echelon consists of:

1. Aviation, both observation and combat.
2. An advance covering force, operating well to the front of the battle position. It has the mission of securing information delaying the enemy and deceiving him as to the location of our battle position. A corps is likely to be the smallest unit having sufficient strength and means available for a covering force.

3. The general outpost provides additional security and deception, forces early development by the enemy. When the terrain permits, this outpost should be located to prevent observed hostile artillery fire on the battle position.

4. Combat outposts are established by front line battalions for local security and to protect the position from small arms fire.

Thus we have in front of our battle position a deep organized delaying area.

We come now to the battle position, the main part of the entire defensive organization, and the area which must be held at all costs.

On its location are based the locations of all the other echelons of the defense.

The five principal terrain features desired for the battle position are: adequate artillery OP's—good fields of fire—concealment from observation—natural obstacles—routes of communication.

The battle position is a zone of resistance built up of a number of mutually supporting defense areas.

Each of these defense areas is assigned to a single tactical unit. Thus we have: squad defense areas, platoon defense areas, company defense areas, and battalion defense areas, each one constituting a part of the defense area of the next larger unit.

Each unit, whether large or small, organizes within its own area those tactical localities which it *must* hold in order to maintain the integrity of the area.

Thus, the location of the defense areas is based on the terrain; and, as a result, they are disposed irregularly, both in width and in depth. The pattern of distribution will never be the same in any two positions because the situation and the ground will never be the same.

The unoccupied intervals between the organized areas are covered by fire.

All defense areas are mutually supporting; and each one, from the platoon to the battalion, is organized for all-around defense. By all-around defense we mean that a unit must be able to protect itself from any direction either by troops actually in position, or by troops able to move or be shifted to previously prepared positions. From "any direction" means not only from the four points of the compass, but also from the sky against aircraft or airborne troops.

These characteristics of mutual support and all-round defense add to the flexibility of the defense, that is, make it more adaptable to changes in the situation.

Thus, if an attack should come from the flank or even from the rear, the defense areas are still mutually supporting; and their all-round organization enables them to meet the new attack, regardless of its direction.

Our FSR states that the fires of the defense are coordinated with respect to the forward edge of the most advanced defense areas. This edge is called the MLR.

According to our doctrine, the defense must be able to concentrate all of its fire in front of the main

line of resistance, that is, in front of the forward edge of the defense areas.

If the plan of fire does not provide for this concentration of fires in front of the main line of resistance, or the disposition of weapons does not permit it, then never at any time during the operation, will the enemy be forced to endure all the fire of which the defender is capable.

On the other hand, the concentration of the fires of all weapons in *front* of the MLR limits the depth of the battle position, orients the entire defense with reference to an attack from one direction—the front—and this is basically inconsistent with the idea of all-round defense.

This argument has a lot of truth in it, but remember we locate the battle position so the enemy must attack it, we locate it to block the most probable route of enemy advance; so we must plan to block the front door anyway. Then we must plan to block the flanks and rear by a prearranged use of reserves supported with all the fire possible.

The location and areas of the infantry regimental reserves are coordinated by a similar so-called line known as the regimental reserve line.

The regimental reserve organizes the RRL, then it and the reserves of higher units are held mobile in rear of the battle position prepared to:

Counterattack.

Extend the flanks of the position.

Relieve a unit in the battle position.

While the reserve is held mobile and we wish to exploit that mobility fully, we cannot expect in this day of combat aviation and mechanized forces to park it in a convenient location with no protection but concealment.

In order to prevent the overrunning of reserves by mechanized forces which pass through or around the battle position, all reserves in rear of the battle position must be dug in and organized for all-round defense.

In addition, protection must be provided against aviation and plans made to counter an attack made by airborne troops.

It is evident then that the digging in of the reserves in rear of the battle position adds considerably to the depth of the position, especially if the commander considers the defensive possibilities of the ground when deciding on the tactical location of the reserve.

If the defense is to be successful, it must be aggressive. Against a first class enemy, a purely passive defense is doomed from the beginning.

Aggressiveness will depend largely on the spirit of the troops and the caliber of their leadership. The counterattack is the decisive element of defensive action.

Initially the defender attempts, through the counterpreparation fires of his artillery, to disorganize

THE DEFENSIVE

and break up the hostile attack before it can be launched.

Failing in this, he attempts to stop the enemy advance in front of the battle position by bringing to bear upon it a progressively increasing concentration of the coordinated fires of all his weapons.

If, despite all this, the enemy succeeds in getting a foothold in the position, he is slowed down by our organization in depth and then ejected or destroyed by counterattacks.

A counterattack differs from an attack only in being delivered from a defensive position. It is equally dependent upon surprise and speed in execution, and requires the same carefully coordinated support of all available weapons. A lack of thoroughness in planning usually means lack of success in execution.

Therefore the preparation of a counterattack, especially a large one, requires time.

The time required to prepare a counterattack and the speed with which we wish to launch it are conflicting considerations.

In order to insure speed in the execution of a counterattack without sacrificing thoroughness in preparation, counterattacks must be planned in advance.

It is true that all the circumstances of the situation cannot be known in advance, and some changes

in any plan will probably be inevitable.

However, experience has proved that it is easier and better to adapt a previously prepared plan to a changed situation than to attempt to prepare and coordinate a plan on the spur of the moment.

The above is our present teaching; however, it would appear from lessons learned in the present war that it might be well to reconsider our conception of depth in a battle position. Our FSR limits the depth of the battle position by the requirement that all weapons must be able to fire in support of the MLR. Thus the maximum depth of our battle position does not exceed 2,000 yards. [See FM 100-5 (FSR) Pars 610 & 611.]

The Russians and the Germans obtain greater depth by the use of a series of defensive position and by giving to a battalion twice the depth considered normal by our FSR. This depth prevents all weapons from firing in support of the MLR.

The defender, in modern warfare, cannot hope to prevent a well conceived and executed attack, supported by combat aviation and armored forces, from punching in and seizing a part of our position. Therefore the modern defense must slow down and exhaust the attacker by defense in depth and then eject or destroy him by the counterattack. The defender needs greater depth to give him time to react to the speed of a modern attack.

The unquestionable advantages of the inner line of operations are valid only as long as you retain enough space to advance against one enemy by a number of marches, thus gaining time to beat and to pursue him, and then to turn against the other who is in the meantime merely watched. If this space, however, is narrowed down to the extent that you cannot attack one enemy without running the risk of meeting the other who attacks you from the flank or rear, then the strategic advantage of the inner line of operations turns into the tactical disadvantage of encirclement during the battle.

—Field Marshal von Moltke.

The Story of Captain Wigh

By

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The station list of the Third Army—whose headquarters is in San Antonio, Texas—does not list the 984th Infantry Division as a subordinate element for the very excellent reason that the 984th Division is a purely fictitious division which, for the purposes of this story, has been placed under the jurisdiction of the Third Army. The home station of this "division" is every bit as ethereal as the personnel which it accommodates, although the assumption is made that it is somewhere "deep in the heart of Texas." But while the members of the 984th are imaginary characters, their problems and difficulties are the same very real ones which are encountered by real people. One of these problems is the reason for this story.

Down in one of the infantry regiments, Lieutenant Colonel Ecks, a battalion commander, has just about reached a decision. For some time he has been carefully observing Captain Wigh, one of his rifle company commanders. Apparently Captain Wigh has little or no leadership ability, for he is unable to obtain satisfactory results from his men. More than this, the captain seems to have practically no interest for his work, with the result that his performance as a company commander is unsatisfactory. Of course, Lieutenant Colonel Ecks had noted this failing some time ago, and by talking with the captain, he had tried to straighten him out and help him improve his performance of duty. But no improvement was noted, and the time had come when the battalion commander had to take strong measures to correct an unsatisfactory condition.

There were four lines of action for Lieutenant Colonel Ecks to consider: reassignment, reclassification, trial by court-martial, or punishment under the 104th Article of War. Here is a point where a commander must exercise the best of judgment, for he must see that justice is done the officer concerned, and at the same time he must protect the interests of the service. If Captain Wigh's unsatisfactory performance is the result of negligence or wilful misconduct, Lieutenant Colonel Ecks should not hesitate to prefer court-martial charges, or else punish the captain as AW 104 provides. In this instance, however, the battalion commander considered that there had been no misconduct, but that Captain Wigh was unsuited for duty as a company commander principally because of his lack of leadership ability and his inability to understand the requirements of his duties. Having decided this, Lieutenant Colonel Ecks had to choose next between reassignment within the battalion and reclassification. Since Captain Wigh had

already demonstrated a lack of knowledge of fundamental infantry duties, there was no other place in the battalion where he could be used inasmuch as a thorough understanding of infantry principles is a requisite for any officer in an infantry battalion. Thus, by careful consideration and a process of elimination, Lieutenant Colonel Ecks has reached the decision to institute reclassification proceedings against Captain Wigh, which is the proper course to follow when it is considered that an officer is performing duty for which he is not suited.

Having made his decision, the battalion commander turns to Army Regulations 605-230, which prescribes the various steps which must be taken. He learns that there are five supporting papers which must accompany any recommendation for reclassification. These are (1) Form A—Recommendation For Reclassification Board Action, which is outlined in the Army Regulations; (2) a special efficiency report on Captain Wigh for the period during which the unsatisfactory performance of duty occurred; (3) WD AGO Form No. 66-1, the Officer's Qualification Card; (4) sworn statements from those individuals who have knowledge of Captain Wigh's unsuitability; and (5) sworn statements from such persons as Captain Wigh may desire. When all these papers are ready, copies of Form A and of the special efficiency are furnished to Captain Wigh for his information. The papers are then forwarded to regimental headquarters for further action.

Now, AR 605-230 provides that any commander may institute reclassification proceedings against any officer permanently or temporarily assigned or attached to any unit under his command, so Lieutenant Colonel Ecks is acting within his rights when he institutes these proceedings. However, the assignment and reassignment of officers within a regiment is a prerogative which a regimental commander usually reserves for himself, and consequently the battalion commander did a little bit differently. Having decided that Captain Wigh should not be punished, he went to see Colonel Zee, the regimental commander, and explained the situation to him. The two officers then talked the matter over to decide what course was best to follow. Had reassignment been judged the best, a regimental special order would have been prepared to effect Captain Wigh's transfer. Actually, it was decided that reclassification was the thing to do, and the papers were prepared in regimental headquarters. This procedure accomplished two desirable features. It permitted

THE STORY OF CAPTAIN WIGH

the regimental commander to become familiar with the case, and it relieved the battalion personnel section of a paper-work job. Whether the papers are gotten up in battalion or regimental headquarters is of little importance. The really important point is to determine the reason why Captain Wigh is unsuited for his present duty. If the reason is negligence or misconduct there must be not the slightest delay in the administration of punishment. The possibility of reassignment must receive careful consideration, and if there is no place where Captain Wigh can properly be assigned, then reclassification proceedings are begun. But under no circumstance must reclassification be used as a substitute for military discipline.

The papers are now in regimental headquarters, and from here they are forwarded to the next higher commander, who, in this case, is the commanding general of the 984th Infantry Division. Colonel Zee's forwarding indorsement must state that full consideration has been given to the possible reassignment of Captain Wigh within the regiment.

At Headquarters, 984th Division, the papers are checked to see that they are all in order, and again the problem of reassignment is given careful consideration. While the possibilities of reassignment were quite limited in the regiment, they are much more numerous from a division point of view because of the many diverse qualifications required of the division personnel. Suppose for a minute that it is found possible to reassign Captain Wigh to some other unit in the division where his particular abilities can be used. What happens to the reclassification papers in this event? An indorsement is entered which shows that further proceedings have been stopped due to reassignment and the complete record, together with copies of the reassignment order, is sent to the Adjutant General in Washington for file. However—copies are retained in the division headquarters to be included in any further proceedings which may be required to determine the ultimate disposition of Captain Wigh. Then Captain Wigh is reassigned on division order, and his new commanding officer is informed of the reason for this assignment. At the same time, the new commander is directed to submit a report on Captain Wigh at some future date, said date being so selected as to permit any training which may be necessary, or to give Captain Wigh ample opportunity to demonstrate his ability to perform his duties with the required degree of efficiency.

Here is a place where a good strong G-1 is needed on the division staff. Officer material is scarce, and the G-1 must make every effort to use that which is available for the good of the division. The policy to be followed in reclassification cases will be prepared by the G-1, and after approval by the commanding general, will be passed on to the division adjutant-general who will do the actual paper-work incidental

to these cases. However, the G-1 should see each case which appears, and each must be thoroughly studied from the viewpoint of possible reassignment.

However, in this story of Captain Wigh, it was impossible to find a place in the division where he could be properly employed, and so his papers are forwarded to the next higher commander. Here the procedure is the same. In each headquarters the case is studied with a view to reassignment. If there is an available position, Captain Wigh is reassigned and the case is closed as previously described. If reassignment is impracticable, the papers are forwarded to the next higher commander. Each commander, in forwarding the papers, must indicate in his indorsement that consideration has been given to reassignment.

Eventually the papers reach the highest commander within the geographical limits of the service command within which Captain Wigh is stationed—in this case the commanding general of the Third Army. Again the procedure is the same, except that if there is no possibility of reassignment, the papers are then transmitted to the commanding general of the service command, who, according to the regulations, has "reclassification jurisdiction." This commander, like all the others, has the choice of two lines of action. He may reassign Captain Wigh to some position within the service command, or he may refer the papers to the reclassification board and order Captain Wigh to the Reclassification Center.

It should be noted that all during the progress of these papers from one headquarters to another there were only two choices: reassign the officer or forward the papers. Naturally, the higher the headquarters, the more likely and the more varied become the possibilities for reassignment. The aim of the reclassification regulations is not to provide a lot of grist for the Reclassification Center, but rather to see that commissioned personnel of the Army are employed to the best advantage of the Government. Properly used, reclassification is a salvage operation—not a quick and painless way to rid the service of undesirables. The one question to be kept uppermost in the mind of any commander who receives a set of reclassification papers is this: where, within my command, can this officer be used to the best advantage of the Government? If there is a suitable spot, then the officer is immediately reassigned. If the officer cannot be used, the papers are forwarded to the next higher commander where there are more positions from which to select. In this way, the great percentage of reclassification proceedings are terminated without ever reaching the Reclassification Center.

Returning to Captain Wigh, who has been with his battalion while his papers were traveling through the channels of communication, it so happened that there was no likely place for him to be reassigned within the Eighth Service Command, whose commander has reclassification jurisdiction in this case.

Consequently the papers are passed on to the reclassification board and Captain Wigh is ordered to proceed from his station and to report to the Reclassification Center. There is such a center in each of the nine service commands, in each department, and there may be centers established in other jurisdictions at the discretion of the War Department. At the Reclassification Center, Captain Wigh discovers that it is a separate establishment. It is not a unit which is merely tacked on to some other unit. It stands by itself, and is provided by regulation with everything it needs to conduct its business. It consists of five elements; a reclassification board, a board room, clerical personnel, office space, and the necessary supplies and equipment. To the officer of the army who has served on any of the boards which arise from time to time, the Reclassification Center is a distinct novelty. So many times the members of a board are hard pressed to find a proper board room, or the necessary clerks, or the proper equipment with which to conduct their hearings. Not so with the Reclassification Center. Everything it needs is provided.

The reclassification board consists of at least five permanent members, of which at least one must be an officer commissioned in the line of the Army (i.e., the Infantry, the Cavalry, the Coast Artillery Corps, the Field Artillery, the Corps of Engineers, the Signal Corps, or the Air Corps), and at least one must be an officer of the Medical Corps. All members, as far as practicable, should be senior both in permanent and temporary rank to any officer appearing before the board. In addition to the five permanent members, there are one or more recorders who have no vote in any of the hearings. The job of the recorder is to prepare and present the case to the board, and then to reduce the hearing and findings to writing.

The primary purpose of the reclassification board—its mission—is “to determine the type of duty for which an officer is fully qualified and which he may be expected to perform with the required standard of efficiency.” Notice that the board does not actually fit the round pegs into round holes, nor the square pegs into the square holes. The job of the reclassification board is to determine the size and the shape of the peg, and the hole to which it is best suited.

In carrying out such a mission, the recorder prepares the case. All documentary evidence is gotten in shape, and all papers are shown to Captain Wigh so that he can have ample opportunity to prepare any statements he desires. The regulations provide that Captain Wigh can have individual counsel if he so desires, provided that the counsel is reasonably available and can perform his duties without expense to the Government. Witnesses who are to appear before the board are interviewed by the recorder in the presence of Captain Wigh. If these witnesses are not available, the necessary depositions and stipula-

tions are drafted and secured. Finally, when the case is prepared, the board is ready to proceed with its assigned mission, which it accomplishes through either an informal hearing, or a formal hearing. Many such cases have been satisfactorily completed by informal hearings, in which the board, by examining the evidence at hand and by talking with the officer concerned, has been able to decide what action to recommend. If such procedure is not possible, the board must formally sit and proceed with a formal hearing.

As has already been stated, the recorder presents the case before the board, and in so doing, very fairly protects the rights of Captain Wigh, and at the same time serves the interests of the service. The board considers all the available evidence, and may call for any additional evidence which may be necessary. During the hearing, Captain Wigh is given every opportunity to examine the documentary evidence, or to cross-examine witnesses, or to introduce evidence in his own behalf.

Having considered all available evidence, the board now proceeds to make its recommendation, and in so doing, it is not restricted in any sense. The board is charged with determining the type duty for which Captain Wigh is best suited, and having done this it makes the necessary recommendation for his proper disposition. But while no restrictions are placed upon the board's recommendations, these will generally be one or a combination of the following type recommendations. First of all, Captain Wigh may be recommended for reassignment, in which case the board must specify the type of duty to which the captain should be reassigned. The board may recommend demotion, but only demotion which involves discharge from temporary rank. In other words, the board may not recommend reduction of an officer's permanent rank. The facts may decide the board to recommend a combination of demotion and reassignment. The board may find that Captain Wigh is not suited for any type of duty, in which case it recommends removal from the active list (for officers of the Regular Army) or discharge (for officers of a reserve component or officers initially appointed in the Army of the United States). The board may recommend observation and treatment at an Army hospital, or may recommend such other suitable action as, in the opinion of the board, the facts warrant.

In Captain Wigh's case, the board finds that he is not suited for a command assignment in any branch or service, and that he is not a leader of troops. However, he is found to possess a good educational background, he is above average mentally, and he had considerable experience in a bank before he was called to active duty. As a result of these findings, the board recommends that Captain Wigh be reassigned to duty in the Finance Department.

At this point, as far as reclassification procedure is

concerned, the story of Captain Wigh is ended. The reclassification board has considered the size and the shape of the peg, and the hole to which it is best suited. It has determined the type of duty for which Captain Wigh is best qualified, and which he can be expected to perform with the desired standard of efficiency. It has determined the action to be taken in the case of an officer who was performing duty for which he was not suited. It has taken an officer who was a liability where he was and has found a place where he can be an asset. It has recommended a course of action whereby a commissioned officer can be utilized to the best advantage of the Government.

What happens to Captain Wigh now? The board proceedings, with its recommendations of reassignment to the Finance Department, are submitted to the convening authority, who, in this case, is the Commanding General of the Eighth Service Command. If this officer approves the recommendation of the board, he will issue the necessary orders to reassign Captain Wigh to duty with the Finance Department. The complete record, together with any orders issued in connection therewith, is sent to the Adjutant General in Washington. In the event that the commanding general of the service command disapproves the recommendation of the board, or if the board recommends any action other than reassignment, then the complete proceedings, together with the remarks of the general, are sent to the Adjutant General, where final disposition of the case will be made.

This completes the story of Captain Wigh. All characters mentioned by name are fictitious, and any resemblance to persons living or dead is purely coincidental. But the procedure described is actual and correct.

There is usually a reason for telling any story, and there are several good ones for telling this one. First, it has been told in an effort to remove the mystery and misunderstanding which many officers have about reclassification. In the second place, it has been told to prove that there is nothing shameful or disgraceful about reclassification. However, this procedure may also be used to eliminate officers who are found to possess habits or traits of character which render their retention in the service undesirable, but except for these cases, no discredit should be attached to the officer who has been reclassified. Of course, the pride of an individual will be hurt when he is reassigned because he lacks certain qualities which his present assignment requires, but these are times when all officers should realize their shortcomings and be ready to admit them. A third reason for telling the story of Captain Wigh is to demonstrate the true purpose of reclassification, which is to salvage commissioned personnel and use them where the best interests of the Government will be served. A fourth reason is to impress the fact that reclassification must never be used as a substitute for indicated disciplinary action. Such abuse only adds to the misunderstanding of the true purpose of reclassification and violates a very definite prohibition of the regulations which states emphatically, "These are not disciplinary regulations . . ." Finally, the story has been told to promote a healthy understanding and regard of the whole subject of reclassification to the end that it may properly perform its assigned mission—"to provide a means whereby commissioned personnel may be utilized to the best advantage of the Government or eliminated from the service if unsuitable."

If I had to take one quality as the mark of the really great commander, I should call it the spirit of adventure. He must have a touch of the gambler. He must have personality, which is simply knowing your own mind and being determined to get it. He must have a general interest in, and knowledge of, humanity—the raw material of his trade.

—General Sir Archibald Wavell.

Factors in the Japanese Success

By

LIEUTENANT COLONEL C. STANTON BABCOCK, *General Staff Corps*
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Japanese, both military and civilian, have, in all articles and speeches relating to the war, stressed certain factors which they hold responsible for Japan's success. They emphasize such diverse features as the "august virtues of His Imperial Majesty," the careful planning of the staffs, and the rigid training undergone by both services in preparation for the campaign. Many of their beliefs will seem invalid to Americans, who are not familiar with Japanese psychology, but all are important to the Japanese themselves, and a true understanding of what sustains Japanese morale is impossible unless due consideration is given to those intangible elements which weigh so heavily with their people.

Much has been written about Japanese *seishin*, or spirit, and there has been a tendency among Westerners to discount its value, especially in recent years after Japan's military machine became bogged down in China. It would be a grave mistake, of course, to accept the Japanese conviction that their particular brand of spiritual training turns out men of superhuman courage and devotion to duty, but it should be recognized that it has developed an extraordinary confidence in the armed forces, both among service personnel and among the people at large. Constant repetition of the simple tenets of this particular brand of propaganda, aided by the close integration of the army with village and family life, has built up a unity of ideas and ideals throughout the empire that is paying big dividends in the present crisis. This deep-rooted confidence in the abilities of the individual Japanese soldier has done much to offset the inferiority complex prevalent among the Japanese for many years in regard to the technical superiority of the western powers. Official propaganda and war news are designed to foster this spirit of trust, and great care is exercised to see that no intimation of any military setback ever reaches the people at home. The initial sweeping successes of their armies and fleets have served to dispel any doubts which might have lingered in the minds of the unregenerate few. The war spirit and morale of the people were higher in the summer of 1942 than ever before. *Yamato Damashi*—the Spirit of Japan—is no longer simply a slogan for patriotic spellbinders; it has entered deeply into the lives of large sections of the people.

The authorities have used the China incident, admittedly unpopular from the

start, to prepare the country—militarily, economically, and spiritually—for war. Restrictive measures, which would have caused undue hardships and considerable unrest if applied suddenly before the gravity of the situation had become apparent to the man in the street, were introduced gradually over a long period as the necessity for each further limitation became evident. The very failure of the war in China was used to prepare the nation mentally and to induce the populace to accept the idea of total warfare. Much as the people may have deplored the outbreak of the incident, there was never a moment's doubt in their minds as to how it must end. As the realization came home to them of the need for greater and greater efforts, they accepted the inevitable reorganization of the country's life with characteristic calmness and quiet determination. Three years of clever and incessant propaganda, coupled with the knowledge of American and British aid to the Chungking régime, have convinced the majority of the Japanese people that the two democracies were to blame for the desperate situation in which their country found itself. Gradually the realization was borne in upon them that war with the United States was a possibility, and that if it came, every last ounce of the country's effort would be called forth. There are many Japanese who would have given a great deal to avoid such a war, but they understood how impossible it was to influence the course of events and therefore fatalistically conformed the pattern of their lives to the measures required to prepare the country for its supreme test.

This resigned acceptance of the dictates of constituted authority and the lack of outward enthusiasm were mistaken by superficial foreign observers as war weariness and discontent. What such observers overlooked is that even in the most liberal Japanese the emphasis is on the *Japanese*. In the final analysis his loyalty goes unquestioningly to his country, and he wastes no time or thought in deploring mistakes made in the past. He knows that whatever may have been the causes, his country is now fighting for its life, and he is ready in every way for total war. As Japanese commentators never fail to reiterate, Japan passed through the period of mental and physical preparation for war during the four years prior to December 1941.

The Japanese point out that during the four years of undeclared war in China

they reorganized the economy of their country, put it on a war-time basis, and actually increased its industrial output many-fold. Budget figures released in the press indicate that only forty per cent of the appropriations voted to the defense forces was expended for the conduct of the China incident, while sixty per cent was used to prepare the services and the industrial plant for "greater emergencies yet to come." Similarly, of the materials and weapons furnished the services, only one-fifth was sent to China, the rest being used to expand and modernize the armies and fleets which were to be called upon when war really came. Oversimplified and vague as these figures are, the Japanese nevertheless use them to support their premise that the war in China has left Japan stronger rather than weaker and in a better position than ever before to strike at her enemies.

The army used the China War as a test for its tactical doctrines, a proving ground for its matériel, and a training school for its personnel. The constant rotation of officers and men through the ranks of active divisions on the China front has built up a magnificent reserve of men with combat experience. Many of these were used as nuclei in the formation of new divisions so that when the war began, all of Japan's combat troops contained at least a core of seasoned veterans.

The units and commanders designated for the various tasks in the war for which they were preparing were selected months in advance, and were concentrated in special training areas where the terrain and climatic conditions approximate those in the regions where they were to fight. The Malay army trained in Hainan and Indo-China, the Philippine force in Formosa, and both units practiced landing operations during the late summer and fall of 1941 along the South China coast. Even the divisions chosen to attack Hong Kong were given rigorous training in night fighting and in storming pillboxes in the hills near Canton. So realistic were these maneuvers that the troops are reported to have suffered "a number of casualties." This kind of training sent the Japanese armies into the field fully cognizant of and excellently prepared for the specific tasks they were to perform and organized and equipped with superabundant strength to overcome the degree of resistance which they knew they could expect.

Japanese commentators make no secret

FACTORS IN THE JAPANESE SUCCESS

of the fact that the High Command was fully informed for a year before the war as to the strength, dispositions, and likely plans for defense of their then potential enemies. They say that a good deal of this information was gathered by "observing" maneuvers (probably through secret agents) in the Philippines and in Malaya. With all this information in their possession, the Japanese were able to make detailed plans for attack, and to estimate accurately the number of men and the types and quantity of weapons, matériel, and supplies their armies would need in each of the theaters of operations.

The extent of knowledge of the enemy situation was freely publicized in Japan, after the conclusion of the initial campaigns, with a view to impressing upon the public the need for strictest observance of their own Military Secrets Act. This law, which is probably the most airtight ever enacted, is credited with having been responsible for the element of surprise with which Japan overwhelmed her enemies. The authorities drew striking contrasts between the secrecy which shrouded every Japanese move and the "boastful and stupid publicity indulged in by the ABCD (American, British, Chinese, and Dutch.—Ed.) Powers."

Considerable use was made of propaganda which the Japanese euphemistically term "informing the oppressed inhabitants of the Co-prosperity Sphere of Japan's peaceful intentions." Great claims are made for the success of this campaign. The Japanese people were regaled over and over again with descriptions of the throngs of happy natives who turned out to welcome the Nipponese troops wherever they advanced. Personal-experience accounts bear out these claims to some extent, especially in Burma and in the northern Malay States, where anti-British feeling appears to have been particularly intense.

The Japanese make a great point of the fact that their army considers no terrain "impassable." They assert that their tactics were frequently based on the principle of attacking through a particular area, in the knowledge that their enemies had been lulled into a false sense of security and complacency by the very

fact of its so-called impassability. They emphasize the disastrous effect on the defender's morale once an "impregnable" area has been pierced. Here they frankly admit the tutelage of the Germans who, frequently since the spring of 1940, have shown the world how often the Allied commanders had mistaken terrain which is merely difficult for that which is *impassable*.

Another important factor, which the Japanese have kept constantly in mind, is the prime importance of air superiority. Admitting frankly their enemies' greater potential air power, they knew nevertheless that they could seize command of the air in East Asia and maintain it for a long time, and from the very beginning they directed all their energies to that end. Air force units, both of the army and of the navy, concentrated their strength against enemy airfields, and not until the opposing air strength was thoroughly crushed was any considerable part of the Japanese force diverted to other missions. Whenever the enemy managed to reinforce or reconstitute his battered air units in any particular area, the Japanese air force immediately returned to its primary mission and stayed with it until unquestioned supremacy was once more achieved.

The use of dive and light bombers as a kind of long-range artillery was closely patterned on German tactics, as the Japanese themselves admit; and it was especially effective in the early stages of the Malayan Campaign where the terrain made observation difficult and the emplacement of large numbers of artillery batteries virtually impossible.

There was, according to all accounts, excellent cooperation between the land and sea forces and the air arm of both services. Whatever traditional jealousy might have existed between the army and the navy did not extend to the armies and fleets at the front. The teamwork left nothing to be desired. "Task forces" organized during the summer of 1941 trained and worked together continuously until the outbreak of hostilities. Four years of frequent collaboration against an active enemy on the coasts and rivers of China had given both services much valu-

able experience, which was put to good use in planning and organizing joint expeditionary forces. Details of command, supply, and other matters which might have given rise to controversy were carefully worked out in advance and clearly understood by all concerned.

The most important factor contributing to their victories, according to all Japanese military commentators, and the one which carries most weight with the outside observer, is the superb offensive spirit which permeates all of the armed forces of the empire. This spirit, recognized by competent military men as the most vital intangible factor in achieving victory, has been nourished and perpetuated since the foundation of the modern Japanese army until it has become a veritable fetish to all ranks. The high command has counted heavily on the advantages this would give Japan over her less aggressive enemies. It was well aware of the psychological effect produced on the British, Dutch, and Americans by reliance on defense. It put great store in the flabbiness produced in the white man after nearly a century of easy and luxurious rule in the Far East. It attaches great importance to the disunity in the United States over the war issue and counts on an appreciable interval before an aroused nation can find itself and develop a fighting spirit of its own. By that time, it feels, Japan will be in complete control of all of East Asia.

The Japanese High Command balanced all those factors against Japan's hard, aggressive spirit and found the scales tipped deeply in Japan's favor. And when the Japanese struck, the high command made no provision for failure and left no road open for retreat. The Japanese forces struck with all the might and power at their command, risking all on one magnificent gamble. And they will continue to fight in the same manner. In the words of their leader, Premier-General Hideki Tojo, "Japan has no road back. She must and will continue to attack with every ounce of strength of her hundred million people until the British Empire and the United States are crushed forever."

In war you cannot afford the luxury of squeamishness. Either you kill or capture, or you will be captured or killed. We've got to be tough to win, and we've got to be ruthless—tougher and more ruthless than our enemies.

—Captain W. E. Fairbairn in *Get Tough!*

(Originator of the Fairbairn System of close-combat fighting.)

The Artillery Aerial OP

By
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Around the beginning of this century certain improvements were introduced into field artillery which had great bearing on the importance of observation. These were smokeless powder, recoil absorbing mechanisms and greatly improved sights and obser-



161 Signal Photo Company D-3

FIGURE 1

Spraying plane with water paint for protective coloration (Note comparative sizes of plane and $\frac{1}{4}$ -ton truck.)

vation instruments. The introduction of these improvements made possible greater effective ranges, greater accuracy, and increased rates of fire. These capabilities called for a new technique in fire adjustment, and indirect laying was developed. With indirect laying came the demand for greater observation so that the fullest fire capabilities of the artillery might be used. From that time to the present, the artilleryman has used his ingenuity to get up where he could have as nearly a birdseye view of his target as possible. Water towers, silos, church steeples, trees, and hilltops have been supplemented by telescopic ladders, kite balloons, and airplanes.

Toward the end of World War I the adjustment of artillery fire from airplanes and balloons became fairly common but was far from satisfactory. There were never enough planes, balloons, or competent observers. Communications were slow and uncertain. Enemy air action made this type of observation costly. Nevertheless, in those instances where satisfactory adjustment was obtained by aerial means, the saving in ammunition was tremendous and the effectiveness of the fire was increased. Both Germans and Allies relied to a much greater extent on the use of the kite, or observation balloon, than the airplane in

spite of the extreme vulnerability of this type of aerial OP to hostile air action. The balloon, with all its drawbacks, was more dependable than the airplane for artillery work.

The artilleryman's experience with airplane observation during the years 1916-18 was encouraging enough to make him appreciate its possibilities, and he began to plan the abandonment of the vulnerable balloon with its limited mobility in favor of the more maneuverable airplane. This involved cooperation with the newly created air arm. It was not long until the artilleryman realized that the Air Corps also had visions and plans—not for the slow-flying crate suitable for adjusting artillery fire, but the faster, combat types of aircraft. Just as the trunk-line railroad is much more interested in exploiting the possibilities of its transcontinental streamliners than its slower milk trains, so has the Air Corps been interested in developing long-range bombardment and high-altitude fighter aircraft rather than the small, slow ships necessary for close observation work. This was a very natural tendency and reflects no discredit on the Air Corps.

During the nineteen twenties and early thirties the artillery worked long and diligently with the Air Corps to perfect a workable system of aerial adjustment of fire; and the longer they worked the more



FIGURE 2

"Gassing" plane from a $\frac{1}{4}$ -ton truck.

convinced they became that this was a problem which the artillery would have to work out within its own organization. Chief difficulties encountered were the trend toward heavier, faster observation aircraft; uncertain communications; and a lack of under-

standing of each other's capabilities and limitations. Another factor, especially in National Guard organizations, was the shortage of service ammunition, which often resulted in the artillery's being unable or unwilling to set aside more than a few rounds for air adjustment problems.

Later in the nineteen thirties the Air Corps equipped an observation squadron at Fort Sill with autogiros, and for a brief time it seemed as if these might be the answer. As the experiments went on, it became more and more apparent that the answer had not yet been found. The autogiro was not free from operating bugs. The craft was expensive (and expense was always a big factor during the interwar years). It required highly trained pilots to operate, and maintenance was costly. During this time the balloon enthusiasts, never completely downed, were able to remove one of the balloon's chief disadvantages: the difficulty of moving the balloon from one ascension point to another. This was done by attaching a control basket containing a low-powered motor by which the balloon could be flown over reasonable distances under its own power. But the answer to the artilleryman's prayer had not yet been found.

About two years ago at our southern maneuvers, there appeared on the scene some of the inexpensive, low-powered planes of the type which have been so popular with our young civilian student pilots. These planes were equipped with two-way radios but otherwise were just as they came off the production lines. Handled by skillful, civilian pilot-demonstrators, they gave a convincing demonstration of the possibilities of this type of aircraft for artillery use. Just how much encouragement the manufacturers responsible for these demonstrations had received from air-minded artillerymen is not known. You may draw your own conclusions. The important thing is that shortly thereafter the Field Artillery received a go-ahead signal and promptly began a series of tests at Fort Sill which have been so successful that this type of airplane is now organically included in division and corps artillery.

One important fact must be remembered when considering the use of the artillery "grasshopper" plane: it does not supplant airplane observation *over* targets. This light, slow, underpowered plane is not adapted for flying over enemy territory to adjust fire for long-range artillery. Such a misuse of this aircraft can have but one result: its prompt destruction by fire from enemy ground weapons, aircraft, or both. Long-range artillery firing on targets deep in the enemy sector must still be adjusted by observation aviation from the Army Air Force, unless visibility is exceptionally good or adequate sound and flash ranging facilities are available.

The proper conception of the use of the artillery observation airplane is that of an elevated OP. Flying at not over 600 feet altitude, far enough from the enemy forward elements to keep out of range of

ground weapons (one mile or more), and flying for periods of not over 20 minutes at a time, this airplane can hope to accomplish a reasonable percentage of its missions. No miracles of observation are claimed or expected; but the limited scope of terrestrial observation should, under ordinary circumstances, be doubled by the use of the elevated OP.

Pilot material is plentiful within the artillery enlisted ranks. Thousands of men with pilot's certificates have been recruited or inducted into Field Artillery. Many of these men are already expert "pasture" pilots. Since the artillery plane will not ordinarily be flown on extended cross-country trips, at night, or during bad weather conditions, instrument flying ability is not required. The pilot must, however, be thoroughly trained in the technique of take-offs and landings on poor terrain, and in low altitude flight. There is some similarity to crop-dusting operations in this respect. The observers should be officers who are expert in adjusting fire by ground observation, expert radio operators, and physically and mentally adapted to air operations. While not absolutely necessary, it is highly desirable that the observers also qualify as pilots, especially for morale reasons. As many of the battalion officers should qualify as air observers as practicable.

Simple maintenance (first and second echelon) is carried out in the field by artillerymen. (See figs. 1 and 2.) Third echelon maintenance, such as complete overhauls, must be taken care of by the Army Air Force. This type of maintenance is infrequent since the aircraft can fly satisfactorily for several hundred hours between overhauls. Major crack-ups will be one factor which will increase air base maintenance operations. Since speed and altitude performance is not required, low octane aviation gasoline or a good grade of truck gasoline is used.

Conventional landing fields or strips are not necessary to successful operation of this elevated OP. Short stretches of level, unobstructed highways or farm lands can be used. This does not mean that these planes can be flown off any terrain which can be negotiated by a jeep. Very often the skill and ingenuity of the pilot will be tested to the utmost. For instance, one would have to look over a large area in the cranberry-bog district of Wisconsin to find a few suitable landing strips; yet in the Louisiana swamplands a surprising number of such landing spots are available. You could land on almost any midwestern farm during dry weather but would come to grief on the contoured plowed fields of the cotton belt. Unfavorable conditions of terrain and climate may sometimes so limit the use of the artillery aircraft that the commander will wish he could ditch them to save bother.

The artillery plane when flying at low altitudes is very difficult to pick up by fast, high-flying combat aircraft. We can expect, therefore, that our enemies will use slower planes for the specific purpose of keep-

ing our aerial OP's on the ground. When one belligerent develops a successful weapon or technique, the opposition soon comes up with some means of neutralization. Once on the ground, the plane must be promptly concealed. In partially wooded country this will not be difficult, a few branches serving to break the outline of the wings and some burlap to cover the pylon windows.

Because of the short periods in the air, as much prearrangement as possible should be accomplished before the flight by the observer and the units for which he is to adjust. While on the ground the observer should spend much of his time at the CP of the battalion to which he is assigned so he may be fully conversant with the artillery situation. Likewise, on the march the observer usually accompanies the battalion commander's party while the pilot hops the plane forward.

While this airplane is primarily used for adjustment of fire, it will often be most useful in reconnaissance and liaison missions, especially for locating our front line infantry elements. In this connection, it is the artilleryman's fear that these little "grasshoppers" will be so popular with the division commanders and their staffs that there will be a constant temptation to divert them from their artillery missions to command and liaison work. These planes constitute part of the tactical equipment of the artillery and should be so treated. If an emergency arises which is more important than air observation for artillery, then naturally these planes should be put on that job. Such emergencies have a tendency to become habitual.

Where mechanized threats are present, and in this war this will probably be most of the time, the artillery plane has distinct possibilities for use as a warning agent. Often this mission may supersede observation as a primary mission.

Summarizing, the advantages and capabilities of the artillery airplane are:

Low cost and easy production. (At least 10 "grasshoppers" can be secured for the price of one autogiro. While we do not pay much attention to cost of essential equipment in war time, it is worthy of notice that the artillery plane can accomplish about everything that could be done with an autogiro. Another definite advantage is that the Taylorcraft, Aeronca, and Piper Cub "grasshoppers" can be obtained in quantity without delay of tooling up production lines.)

Ease of flying operations. (Since extended cross-country, night, and bad-weather flights are

out, pilots can be trained much faster for these planes; prepared landing strips will seldom be necessary.)

Simple maintenance. (Most of it can be done in the field by artillery personnel trained for this purpose.)

Increased observation. (The scope of ground observation is increased as much as twice under ordinary conditions, while in very flat or wooded terrain it often makes adjustment of fire possible where ground observation might be impossible.)

Other uses: Warning of mechanized threats; command, liaison, and reconnaissance missions.

The disadvantages and limitations are:

Inability to make even reasonably safe flights over enemy territory.

Necessity of making short, low-altitude flights for safety reasons. (This means that practically all flight will be at altitudes considered dangerous. In case of forced landings the pilot has little time in which to choose a safe landing spot. The low altitudes also render parachutes practically useless, in fact, only a nuisance in the small cabins.)

Low power. (The pilot has little reserve power to get him out of trouble.)

Lack of visibility. (These planes have plenty of visibility for ground observation; but because of their high wings, there is practically no visibility to the rear or overhead. Plane crew must be warned by ground personnel of danger from enemy aircraft.

In conclusion, it is believed that when used within the limits of its capabilities the artillery airplane will become a very important factor in increasing the efficiency and effectiveness of field artillery. Marked success in this field will doubtless lead to adoption of this type of plane for other divisional uses. But until additional planes are provided, the division commander should curb the tendency which is sure to crop up in his staff to call on the artillery for all kinds of flying missions.

One final word of warning: regardless of what type of mission the artillery plane is engaged in, the pilot must be careful to guard against too many flights over ground installations, such as CP's, bivouacs, or battery positions. An alert enemy will chart the paths of these flights and quickly spot the intersection of these paths as being over a possible CP or other installation.

Staff Coordination Takes TNT!

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According to Webster to coordinate means "to bring into common action."

To achieve such common action by all arms of a force of combined arms requires coordinated effort within the staff of that force. Every one realizes how essential this is if the enemy is to be struck with smothering, overwhelming effect. Unfortunately, the best intentions in the world will not achieve staff coordination unless these intentions are backed by the possession of certain *definite abilities*.

Technique Not Theory (TNT) is required.

Let us therefore consider what these essentials are. In my opinion the staff officer must possess or understand:

a. *Staff Techniques*—or the ability to carry on the basic "pick and shovel" work such as logistical computations, conversion of directives into orders, etc.

b. *Capabilities and Limitations*—or a practical grasp of what each of the included arms is capable of.

c. *Analysis*—or the ability to use one's imagination to correctly visualize impending operations and thus anticipate and remove difficulties.

Too often, possession of the first group of abilities is considered sufficient for staff work. Any intelligent youngster can be readily schooled for such duties, but the same can not be said for the latter two.

To fully realize the capabilities and limitations of an arm requires *time*; *thought*; and, above all, *practical experience*. It can not be completely attained by a theoretical or "white collar" approach.

To analyze correctly seems to be the most difficult of the three. This ability, of course, is also required of the commander and, in fact, of practically any executive required to direct the efforts of others. Nevertheless it does not appear to be ability readily developed.

Let us consider that our staff, both general and special, is well endowed with all these basic abilities. It still must be coordinated to work as a team and produce a coordinated effort. After all, a good staff becomes a single unity, in fact, only part of a single person, since it exists only to complement and amplify the abilities of its commander. Who must take over this duty of coordination and harness each of the staff into the team effort? Obviously the Chief of Staff, whose title itself indicates his role of coordination. But how does he achieve best results?

First, if he is to have his finger on the pulse of every activity, all dealings of the Commanding General with the staff must be through its Chief or at

least in his presence. In cases where circumstances prevent this procedure, and there will be many, the staff officer who receives direct instructions must report both instructions and any action thereon without delay to his Chief.

In suballotting tasks to the various sections, the Chief of Staff must bear in mind that his G's are the planners while his Special Staff contains operators as well as technical advisers. He must carefully establish correct procedures in times of relative calm and avoid short cuts which, while effective then, might break down in time of crisis.

Next let us consider a very difficult problem. How can all members of the staff work *individually* and *concurrently* and still keep these efforts from diverging?

The usual trite answer is that they must work in *closest harmony* and avoid *compartmentation* into little groups.

While this is both *desirable* and *true*, it is not really an answer since it fails to tell *how* this is to be done.

If we start any group working as individuals from a common starting point on a common mission, their pictures of the situation will gradually diverge from a common one as the sides of an angle separate as each lengthens. To prevent this, there must be frequent *short orientations* which restore the common picture. Thus we have a series of very small divergences rather than a single widely separated angle. But how can we achieve this with minimum effort?

Naturally, each staff officer must make a constant effort to exchange ideas with each of the other members of the staff. Notably those whose tasks are mutually dependent, such as G-2 and G-3, must maintain this relationship. But to depend on individual effort alone is wasteful and chances omissions and overlap. Therefore it should, it would seem, be supplemented by frequent, short conferences between the Chief of Staff and the G's or their representatives. These conferences should be held at phases of the operations which favor their purpose. For example, just before the staff changes from full operating strength to reduced strength at night, and once again as it reaches full strength about daylight. Again when a decisive event has occurred which permits adoption of a single plan from among several alternative plans previously under development.

The secret of such conferences is to keep them *short*, very *short*—a matter of just two or three minutes. Starting from the basis of the preceding conference, the salient changes in the situation must

be covered, followed by an equally brief orientation on impending developments. Usually the Chief can best present the picture himself. Occasionally a G may be called on to elaborate. The ability to bring everyone back to a common viewpoint in minimum time is not easy to develop, and must be consciously striven for by all concerned.

If such meetings degenerate into pointless discussion they are, of course, worse than worthless. Normally it will be preferable to leave the orientation of the Special Staff to the G's concerned, except in rare instances when circumstances permit assembly of the entire staff. Occasionally a Special Staff Officer who is particularly involved should attend.

Secondly, we must realize that a staff must be organized so as to function continuously for protracted periods on a 24-hour basis. This fact is so obvious as to appear not worth mentioning; but in actual fact in inexperienced units, it is quite common to see the entire staff "out on their feet," because everyone is constantly "standing by" for something to happen.

This is a certain indication of inexperience and such a unit is in a very dangerous position when something really breaks, for there is no one left with a cool, optimistic, aggressive viewpoint to handle developments. It would seem desirable therefore to have several flexible alternate staff organizations which provide for:

- a. Operation at full staff.
- b. Operation at minimum strength to provide for maximum rest.
- c. Operation at intermediate strength to provide for rest in critical periods as well as for reconnaissance.
- d. Casualties, and cadres.

A sound approach to the problem seems to lie in a pairing system which considers:

- a. Similarity of interest.
- b. Maximum opportunity to become acquainted with duties of personnel with whom "paired."

Variants should provide reduction to either half or quarter staff by well understood procedures. For example, half strength might involve pairing an assistant G-3 with G-2 for one pair and the reverse for the other to insure one experienced man at all times. To reach quarter strength the G-2 section could be grouped with the G-3 and the G-1 with the G-4 to provide at least one tactical and one administrative man. In both procedures special staff groupings should consider similarity of interest and deliberate effort made to develop the ability of the special staff to take over duties involved temporarily.

The ability of a staff to function continuously is also largely dependent upon the technical training and ability of the enlisted specialists provided. Frequently we find that a headquarters which has been quite concerned about the training of the rank and file of its communication and intelligence personnel has left the development of its senior technical NCO's

largely to the personal initiative of the individuals concerned. Such NCO's may not be properly qualified to carry the load of detail work they should be able to perform.

Such a condition greatly increases the volume of work thrown on the staff itself with serious results. A weak NCO in any of the staff sections is a serious liability. It should be realized by all concerned that it is worth many hours of effort on a key man to save one hour's effort, for example by G-3, in a crisis.

How can this training best be given? Well, here are some possibilities:

First, *self improvement work* may be allotted individual NCO's with phased objectives to reach. Their efforts should be checked by thorough examinations given at frequent intervals. Subjects such as map reading, posting of situation maps, handling of staff records all lend themselves to such work provided some qualified officer takes time to actually prepare systematic and adequate tests. NCO's who are unwilling to make the effort or who crack up under strain can thus be eliminated early in the proceedings.

Next, *simple map maneuvers* previously run for the staff can be repeated several times for the benefit of the enlisted specialists, and they can thus be brought to high standards of performance by constant repetition of technical duties.

These maneuvers should develop routine procedures. Let us consider a concrete example—Development of reliable procedures for maintenance of both G-2 and G-3 situation maps.

The posting of one detail on either of these maps involves several steps. These appear to break down into following elements:

- a. Decision as to whether or not to post information in question.
- b. Decision as to how to represent information on the map (decision as to size, character, and location of symbols).
- c. Actual posting.

Notice that the only additional labor involved in posting more than one map is the last step. Decisions involved in the first two steps, once made, will serve for all additional posting. This is important in using enlisted specialists. A possible solution is to hold G-3 responsible for posting of G-3 data on both G-2 and G-3 maps, and G-2 for the posting of all G-2 information. This will insure uniform information on both and will make two identical maps available, an important feature when overlays are being taken off.

Your reaction may be that this will result in posting much unnecessary information on the map of the opposite number.

This is not really true if good procedure is followed and information entered on the work sheet only, and not on the map until it is both verified and of sufficient importance to affect the picture.

In working on small maps in the field in rapidly moving situations, it is highly desirable to keep all unnecessary data off all maps to avoid obscuring the real picture. This means that the work sheet, including work sheet overlays, should be used far more than they are and that by the time data is actually posted on the situation map it should be of sufficient importance to warrant posting on both G-2 and G-3 maps. With minor modifications, similar combinations are possible elsewhere in the staff.

Of course, this is only a very small step in the development of operating routines. Further, it may not be the one considered best. Any alternative will do provided it achieves the purpose. The point is that systematic efforts must be made to develop routines which click under stress.

Regardless of how good our routines are, they must be very flexible to meet the stresses and strains of the fast-moving situations of modern war—for example, our CP will frequently be functioning in three echelons, forward and rear echelons and an advanced CP operated with minimum personnel. This requires a reorganization in the forward echelon personnel to furnish operating personnel for the advanced CP.

Furthermore, the problem of "keeping a common picture" is complicated since important decisions are taken and orders issued by the Commanding General while absent from the CP. These must be known to the Chief of Staff and others concerned as soon as possible. This again involves development of routines. A well indoctrinated staff officer will, as previously mentioned, report fragmentary orders given and action taken promptly. However, sometimes such orders are given to subordinate commanders direct.

To take care of such conditions, it is well to have the CG's aide record and promptly report to the Chief of Staff all orders or instructions given by the CG while away from the CP. These should be reported by the aide at the first opportunity and recorded. Liaison officers should also be alert to keep the picture complete. The division liaison officers at adjacent divisions and at corps will frequently hear fragmentary orders and these orders should be promptly reported to division if any doubt exists as to whether they will reach there by other channels.

To meet rapidly moving situations the staff must also be prepared to exploit to the fullest each of the following means:

- a. Warning Orders.
- b. Alternate Plans.
- c. Fragmentary Orders.
- d. Standard Operating Procedures.

A comment on the advantages and limitations of each seems in order:—Warning orders are a great help to subordinate commanders. All staff officers should be alert to exploit this. For example—once a partial decision has been made "to attack the

following day," that information may be used to advantage by subordinate commanders in making timely and complete preparation. However, this advantage must be balanced against the chance of sacrifice of surprise through leakage. The staff must know just how much time is required for adequate preparation and make every effort to afford that time by warning orders to those who must know and to no one else.

Advance alternate plans are so essential in the meeting of fast moving situations that it seems as if there is never a leisure moment for a staff officer. Life is just one plan after another. Not only must alternate plans for carrying out a certain course of action be ready for all eventualities, but plans for alternate lines of action must be ready. For example—when one attacks—where and how will we take up the defense? When we defend will we counterattack or withdraw?

To make these plans flexible enough to meet all possibilities and yet sufficiently definite to have any real practical value is another problem. Let's take a concrete case which often gives trouble—the planned counterattack—where, when, and how must we be ready? If we go into details of line of departure—objective, boundaries, etc.—how do we know where the situation will call for attack? If we do not what can we include? In general, two types of advance plans seem practicable:

- a. The "backbone" counterattack.
- b. The "mousetrap" counterattack.

The "backbone" counterattack is suitable in a situation where it is impossible to foresee just where and when the attack will occur; but it is possible to prescribe several key directions in which such an attack might be launched. These are indicated by plotting such key axes on the operation overlay with an indicated priority, if possible. The axis given should be a *line or series of landmarks* which can be *readily identified* on the ground. If possible, this line should have the characteristics of a good offensive boundary, since this permits it to be used as an interior boundary between units of the counterattacking force. Such an axis also facilitates selection, in advance, of several possible lines of departure and terrain objectives along the indicated axis as well as movement to the selected line of departure.

In the "mousetrap" type counterattack, as the name indicates, we plan to catch our opponent at a point which places him at maximum disadvantage. Consequently, it is possible to be more definite and specify in advance contemplated lines of departure and objectives. An attack of this type might be planned to strike from behind the shelter of a strong defensive area against the flank of a hostile advance up a corridor of approach. It is, of course, more limited in application than the first type.

Now to consider the place of SOP—First, we must

remember that the use of SOP does not mean stereotype procedure. We may have several alternate procedures for any given operation. However, to take care of sudden emergencies, the most commonly used should be prescribed for habitual use in the absence of orders to the contrary. Of course, such routines are only as valuable as is the ability of the troops to execute them. The fact that they are recorded on paper does not mean they have been mastered. On the other hand, a written record of a unit's SOP should be available for the use of replacements.

At first such a record may be short, but as the unit becomes experienced and develops new routines it should grow. Combat routines should be varied and added to as are the plays of a football team, but to say that the use of SOP necessarily involves stereotyped procedure is to imply that we intend to keep the enemy from knowing what we are going to do by not knowing ourselves in advance.

In fast moving situations, fragmentary orders will often be required. These are best given in overlay form amplified by necessary notes thereon. The danger of the fragmentary order lies in the difficulty of trying to keep in mind what information was sent to each unit when several different messages are sent. For this reason it is often simpler to get out short identical overlay orders rather than to use fragmentary orders of this type. Caution must be exercised in the handling of written orders. Copies should be kept to a minimum, num-

bered, and safeguarded in accordance with *rigidly enforced* instructions designed to insure against a copy falling into hostile hands. Where liaison officers are employed, instructions can frequently be committed to memory for transmission. In instances where orders are too detailed to permit this, oral instructions can be amplified by cryptic notations on maps or overlays designed to be unintelligible to the enemy. For example important points or localities could be marked in accordance with prearranged offsets in distance and direction or lightly pricked in by pin points.

To further safeguard written orders SOP arrangements to facilitate destruction of important papers should be constantly maintained at all Command Posts.

It is realized that many will not agree with the ideas outlined herein. They are only an approach and a very incomplete one at that, but if they provoke discussion and consequent development of definite procedures, they have served their object.

In conclusion—bear in mind that the Chief of Staff is the vital link in the achievement of *co-ordinated staff planning*. Good staff practices combined with teamwork among all members of the staff can greatly simplify his task—but he must have developed *practical procedures* which permit him to keep his finger constantly on the pulse of individual effort to insure coordination. To do this requires *Technique Not Theory*.

Wise commanders have concluded that it is normal for orders to mis-carry, or to arrive too late, or to be misinterpreted, or not to be fully executed . . . it is normal for information to be delayed or to be insufficient; that it is normal for units to be late, or to lose their sense of direction, or to become mingled with neighboring units; that it is normal for material means to be inadequate, staffs overworked, commanders harassed, roads congested, traffic interrupted, supply to falter at critical moments. Theirs it is to make the best of what they have, but "carry on."

—General H. E. Ely, U. S. Army, in *Leadership and Morale in War*.

An Outline of the New Divisions Course

By
COLONEL JOHN H. VAN VLIET, *Infantry*
Director, New Divisions Course

The New Divisions Course at the Command and General Staff School, Fort Leavenworth, Kansas, starts about two and one-half months before a new division is to be activated and runs for four weeks.

The members of the division who take this course are the Division Commander—Chief of Staff—four General Staff officers and three assistants—ten Special Staff officers—Headquarters Commandant—and Reconnaissance Troop Commander: that is, a total of about twenty-one officers per division.

The purpose of the course is to (1)—weld the staff together into a working coordinated team and to (2)—teach them approved methods of staff operations and the latest doctrine of modern combat operations. As a secondary purpose the course helps them to learn each other's capabilities and limitations, this usually being the first time that any of the twenty-one officers have seen each other.

Since the course is designed to be the foundation for future development and actual staff operations on their arrival at their camp, the applicatory system of instruction is used as far as possible. That is, each member is required to solve many of the various exercises himself and not just listen to some one else's solution. Also, to broaden him and to assist him in understanding the other fellow's problem, the work is not necessarily that of his own present particular staff assignment but is connected closely thereto.

In order to insure that all have a working knowledge of our present authorized units, the first week is devoted to a study of the organization of infantry, artillery, armored, air, and airborne units: the principal characteristics of our main weapons and machines and a study of the basic duties of each member of the General Staff and of the Special Staff.

The second week is a continuation of practical work in the basic duties under varying tactical situations. To control this work the class is divided into two groups, G-1 and G-4, G-2 and G-3, since the basic tasks of those two groups are related closely to each other. Near the end of this week the first map exercise is held and on Saturday the Division Commander is handed a directive for the Initial Staff Task (this is the actual job that will confront the division staff on their arrival in their own particular camp and is based on actual existing conditions as to readiness of camp, target ranges, training areas, state of training of officer and enlisted cadre, ex-

pected arrival of equipment and trainees, and the current training directives from higher headquarters). The school obtains this information as soon as we learn the name of the division and its camp, so that it will be correct and up to date. It is then passed on to the Division Commander and staff when they arrive so the Division Commander can look into any special points when he makes his visit into his area.

During the third week, the Division Commander and Chief of Staff prepare their own Staff Directive on which the staff will work in the fourth week. The rest of the group are engaged in solving map exercises covering the most usual types of combat such as marches—motor movements—attack—defense—air support of ground troops—antimechanized combat and several others. *Note:* If Infantry, Armored and Airborne Divisions happen to be in the course the class is split into a corresponding number of groups at the end of the second week so that the map exercises and maneuvers in the third and fourth weeks will involve the combat operations of the particular type division to which the staff in question has been assigned.

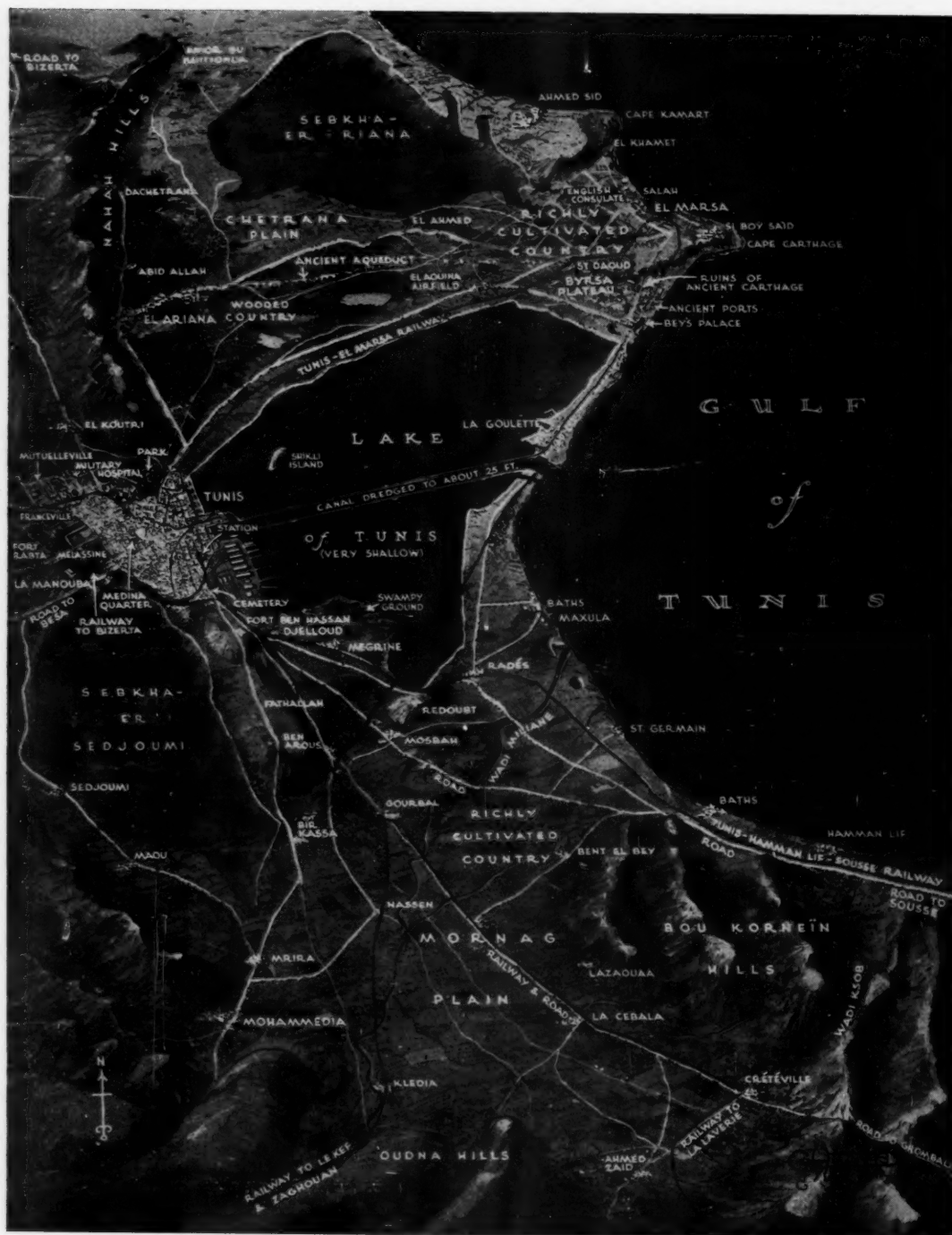
The welding process, which began in the third week in the map exercises, culminates in the fourth week. In this fourth week the staff works as a unit for three days (and nights) solving their own Division Commander's directive for their Initial Staff Task for their own camp. They actually make all their plans in this period to organize and train their cadre—to receive, assign, house, and equip their selectees up to D plus 15—and then their plans for training for the next thirty-five weeks. The remainder of the week is devoted to two map maneuvers and the preparation of a field exercise to be used in the latter part of the thirty-five week period. During all this week including the map maneuvers, the Division Commander takes actual command of his staff and they work as a unit, each member of the staff works on his own job and staff cooperation is stressed.

Throughout the course, orientation lectures are presented which cover the latest war situation in the various theaters as we know it.

To keep the course up to date, contact is maintained with the various groups after they reach their various camps so we can adjust the course to meet the current problems that are encountered in the field.

(Drawn by G. H. Davis, Special Artist of *The Illustrated London News*.)

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TUNIS, with a large population exceeding 200,000, is, with Bizerta, the key town to the control of the Mediterranean and even more important than Bizerta (of which we give a map on the facing page) in one respect: namely, that its possession would give us Cape Bon, from which Sicily is only 60 miles distant. It commands the Sicilian narrows. German air superiority in Tunisia was transitory owing to better aerodrome facilities and provided convenient advanced bases from which fighters could operate against General Anderson's columns. But with the Allies' preparations advancing, both Tunis and Bizerta began to experience heavy and almost continuous raids

by heavy and medium bombers. The important airdrome at Aouina, on the north of the Lake of Tunis, has been severely hammered. RAF reconnaissances have shown extensive damage to the port installations, one basin of the harbor having been completely destroyed. Attacks by Middle East aircraft had destroyed ships, jetties, and a fuel depot at La Goulette, at the mouth of Tunis Canal. The modern Tunis is almost a miniature Paris, with the original city, the Medina, in its center. The ancient Carthage, ten miles from Tunis, is reached by the tramway built alongside the canal route.

—*The Illustrated London News:*

(Drawn by G. H. Davis, Special Artist of *The Illustrated London News*.)

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BIZERTA'S geographical position, with Tunis, is well recognized as the vital key to the command of the entire Mediterranean, and hence the slow but steady advance of General Anderson's First Army upon it; and his attempt to drive a wedge between the two towns is watched with deep interest by both the Allies and the Axis. Bizerta's importance at present rests less upon her naval docks, which have been severely bombed, than upon her contiguity to Sardinia and Sicily, the nests of Axis air forces. Cape Spartivento, Sardinia, lies only 125 flying-miles from Bizerta; and Marsala, Sicily, 150 miles. Our map, showing the contours and environs of Bizerta, looks from the direction of the old town and port, facing the Medi-

terranean, southwards through the maritime canal and the dredged channel to Lake Bizerta, a piece of water 70 square miles in size, where stands the naval arsenal and dockyard. It is from this direction that the First Army is advancing, and it is reported that on this side the town's defenses are not so strong. In Bizerta and Tunis are assembled at least 40,000 Axis troops, despite heavy transport losses. Meanwhile Allied air forces are hammering Bizerta and Tunis with ever-increasing ferocity over the narrowing area into which Hitler's forces are being steadily squeezed.

—*The Illustrated London News*

Economic Warfare

By
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From the beginning of time human beings have been trying to win friends and influence people, both as individuals and as individuals grouped together in some form of state. The different methods employed to achieve this objective can be classified under three broad headings; persuasion, purchase, and coercion. The degree and methods employed by states depend on their relative power. Power of a state depends upon many factors, size of territory, nature of frontiers, population, presence of raw materials, and economic development. The ultimate struggle for power between two states becomes war. Because in the last analysis power is the power to wage war, states have always devoted considerable effort to the building of military establishments.

Formerly wars were fought by armies, in which the soldiers were often mercenaries, with no patriotic tie to the cause for which they were fighting. Today industrial production technique is able to clothe and arm large bodies of soldiers, transportation has given them mobility, medicine saves them from death by disease. The result is the modern mass army. But this means that war is now more than a struggle on the battlefield. War today is a battle between nations, where industry, agriculture, and the armed forces are integrated into one team, fighting toward the one goal of victory. War is now fought on three fronts, the military, the psychological, and the economic. It is this last front that we will concern ourselves with in this discussion.

A war is no longer a fight between armies. It is a fight between whole nations. A nation is like a boxer. Just as a boxer puts his whole body into a blow, a nation puts its whole people; the army becomes the fist, which is only the part which strikes.

Clausewitz defined war as "The continuation of policy by other means." The "policy" referred to is diplomatic and economic in character. But today these elements are just as much a part of war as the military. There is no longer any line of demarcation. It might be said that war is continually being waged, sometimes diplomatic, sometimes economic, sometimes military, and ultimately all are merged into one, which is today's total war.

The strength of a nation has been likened to a doughnut that is cut into four pieces. One piece represents the military strength, another the economic strength, a third the strength of the people or the morale, and the fourth the political strength. If these four pieces are balanced, they will fit together to make a whole doughnut. If, however, any of them are

under size, there will be a gap when you attempt to put the doughnut together.

There are no evidences as yet that all parts of the Japanese doughnut are not full size. The German doughnut probably consists of at least three full-size pieces, but the economic piece is under size. A reliable report from Germany indicates that they are lacking in transportation facilities, in labor manpower, and in certain raw materials. All of these are important ingredients of the economic piece. You can fill in the gaps yourself for the Italian doughnut.

Our own American doughnut is probably pretty near full size. Before Pearl Harbor possibly the will of the people to wage war might have been a little short, but unquestionably on that day it increased to full size.

To fight a modern war the economic piece of the doughnut must be full size. A nation must have an ample supply of raw materials and an enormous industrial output. Equipping an army, such as we have today, is not a job that can be done by a few government arsenals. It demands the full participation of a whole national economy.

The power of a nation to wage war is no longer measured in military terms. It is no longer a question of how many divisions, how much artillery, how much ammunition. Today the real power of a nation is measured by the rapidity with which it can turn from the arts of peace to the business of war. How soon can the industrial machinery be converted from the production of goods for civilian desires to the production of goods for military demands?

Economic warfare plays an increasingly important role in the present day conflict. Due to the fact that no modern state is self-sufficient, it is possible to use economic weapons as well as guns, tanks, and planes to attack the enemy. Economic warfare is the use of economic power as a fighting instrument to strengthen your own position and weaken that of your opponent. The more a state depends on the rest of the world for materials and manufacturers, the greater is its vulnerability to economic attacks.

Originally, this type of warfare was waged with the simple devices of blockade and capture. But modern technique has developed it much further. It now moves in the direction of forcing neutral states to participate directly in the economic struggle, by means of economic pressure. They will be enlisted, if possible, in the attempt to deprive the enemy of all possible imports, and to reduce his ability to export and create foreign exchange. The power to resist this

ECONOMIC WARFARE

economic pressure depends upon the self-sufficiency of the state, the ability to control essential routes of communication, and the strength available to counteract attempts to influence neutral states.

For years world trade was conducted on a multi-lateral trading system, with balances settled in London with the British pound sterling. In 1931 Great Britain abandoned the gold parity pound and embarked on a policy of high protection and bilateral trade bargaining. By 1934 the Nazi developed bilateral trade into a weapon of economic warfare with a barter system using the clearing agreement. This is an instrument of international trade, widely used in the early years of the depression by countries which wanted to preserve their gold supply and maintain the exchange rate of their currencies.

A clearing agreement between the two states provides for the creation of a bookkeeping account on which the claims of exporters can be offset against those of importers. There is no actual transfer of funds between the two countries. The importer pays what he owes, not abroad, but to the clearing house, and the exporter collects his due from the same office. The accounts in the capitals of the two states are balanced against each other, and when necessary, import licenses are restricted to the sum available on the credit balance.

This method of international trade, if honestly administered, offers certain advantages in periods of depression and scarcity of foreign exchange. If followed by all states, however, it would destroy triangular trade, and through state regulation greatly encumber the flow of goods. In the hands of the German government, clearing agreements became a weapon, both for economic exploitation and political pressure.

Germany entered into a number of clearing agreements with countries in southeastern Europe. German imports from these countries trebled from 1929 to 1938. As a result, these countries acquired large balances in Germany. The clearing agreements provided that any balance would be carried on the books in Berlin as a credit, which could only be settled in goods. Consequently, these countries were obliged to purchase commodities in Germany. And Germany forced them to accept such items as were not required by the Nazi rearmament program. So instead of locomotives and machinery, these countries got mouth organs, cameras, and aspirin. Maybe they were able to use the latter.

Once they were involved in this barter trade, they could not get away from it. They could not liquidate the balances in their trade account in Berlin. When Germany had established herself as the principal customer for the country's products, she would threaten to cease buying unless certain conditions were fulfilled. Once this influence was achieved it was directed in political channels, and Germany's bargaining position was further strengthened. This was utilized

to increase her demand for the raw materials needed for her huge rearmament program.

Germany kept a firm control on her prices and costs, endeavored to keep the exchange value of her currency high, and depress that of her clients. The object was to get a large volume of imports of raw materials for a small volume of exports of manufactured goods.

Germany would increase her so-called purchases and take larger and larger quantities of the countries' commodities. Often she would take more than she could use and would sell the surplus in world markets at a low price, in competition with her original customer, with disastrous effects. A country would finally realize that this trading with Germany, on her terms, was resulting in Nazi domination of her whole national economy. But in most cases the interested export groups brought so much pressure on the government that the trade agreement would be continued long after its destructive effect was apparent to all. In many cases the Nazis found this barter system much more effective than a U-boat or a Messerschmitt.

Germany did not confine her economic attack to helpless countries on the outskirts of Europe. She has invaded this hemisphere and even this country. Long before Hitler, before she began her military remobilization, she had begun to mobilize her industrial corporations to begin the economic attack.

Today's three dimensional war, with the greatly increased range to which military attack can be carried by air, has increased the extent to which a country becomes involved in modern war. The coordination of military and economic measures is more important than ever.

War is no longer just for professional soldiers but is an all-out national effort in which every individual is personally concerned. The President has called this "The toughest war of all time." In order to fight such a war, we must fight with every weapon at our disposal. We have our armed forces as a fist, carrying military warfare to the enemy. We must also utilize every resource available, put our whole body behind the blow, and wage economic warfare.

There are three primary weapons of economic warfare.

1. Control of trade.
2. Control of finance.
3. Control of transportation.

Control of trade is a many-sided weapon. It has two primary objects. To insure supplies and production necessary to our own war effort and to do all possible to prevent the enemy from obtaining materials necessary to his. This weapon has three principal sides, control of exports, imports, and industry.

Export control is exerted through a system of licensing, designed to prevent the exportation of any materials required in war production. This is administered by the Board of Economic Warfare.

The Lend-Lease program is part of our export control, as this governs the transfer of goods to the other United Nations.

Blacklisting of specified firms in neutral countries, when investigation has shown these firms to be dominated by, or acting as agents for, the Axis powers is another associated export control. Exports to these firms are forbidden and their assets in this country are frozen.

Import control is also exerted by licensing. All imports of materials required in war production come under control of the WPB through General Imports Order M-63.

Preclusive purchasing is another form of import control. This means the buying of goods in foreign countries to prevent the enemy from getting them. The purpose of this is twofold. First, it builds up our supply of strategic materials; and second, it prevents the Axis from getting vital materials, even though we purchase more than we need.

We are now buying strategic materials abroad at the rate of about two billion dollars a year. Among the materials that we are making a particular effort to get are quartz from Brazil; mica from Peru and India; tin from Bolivia and the Congo; tungsten from Bolivia, Argentina, Mexico, and Chile.

Control of industry is exerted almost entirely by the War Production Board. This is done through the control of raw materials by priorities and allocations, and the control of production by limitation orders.

The second weapon is control of finance.

Price control prevents inflation and keeps down the cost of the war. This is administered through the Office of Price Administration.

Loan control provides funds for domestic defense production facilities and to finance the preclusive buying program. This is carried out by the Reconstruction Finance Corporation through various subsidiaries.

Foreign funds control restricts the use of the assets of certain foreign countries for purchases in this country. The assets of Germany, Italy, and Japan, as well as those of the Axis-invaded countries, have been frozen by Executive Order. Transactions are prohibited except under license from the Treasury Department, and these are only issued where it is evident that the enemy will in no way benefit.

Control of transportation is a very important weapon of economic warfare. All means must be rigidly controlled to insure the maximum use of available facilities.

Ocean shipping is controlled by the War Shipping Administration and all domestic transportation is under the ODT.

One form of transportation control is probably the oldest weapon of economic warfare. That is naval blockade of enemy ports. The use of her fleet to enforce blockade has been one of the principal reasons for England's dominance as a world power for sev-

eral centuries. Conversely, convoying our own ships to insure their safe voyage is another form of transportation control essential to success.

Throughout a discussion of economic warfare the one recurring element is raw materials. All of the phases relate directly or indirectly to the raw materials situation.

The accompanying table shows the present situation regarding some of the most important materials. You can see how much more the Axis have now than they had in 1939. Economic as well as military warfare must be waged to win these materials away from the enemy.

Control of economic warfare in the United States is in the hands of the Board of Economic Warfare. The Executive Order establishing it gives the following mission:

"For the purpose of development and coordinating policies, plans and programs designed to protect and strengthen the international economic relations of the United States in the interest of national defense."

The Board of Economic Warfare has interpreted its general mission:

"The broad responsibility to see that fullest use is made of our great economic power, throughout the world, to insure the defeat of the Axis, at the same time helping to lay the ground work for post-war economic reconstruction, and the establishment of sound and prosperous international economic relationships."

There are three principal divisions, two of these, the Offices of Exports and Imports, are the operating divisions; and the third, the Office of Economic Warfare Analysis, functions as a staff division.

The major objective of the Office of Exports is to control the export of goods as an offensive weapon in the prosecution of the war. Some materials are held in this country as particularly necessary to our own war effort. Others are sent to foreign countries to help them increase production of strategic materials which we must import. In many cases exports are used as bargaining power to obtain essential imports. The control of exports is directed so as to make the greatest contribution to the winning of the war.

The Office of Exports obtains information regarding the requirements in other countries, selects the export transactions which will most effectively achieve our objectives, and coordinates production, transportation, and shipping.

The Office of Imports has as its major objective the importation of commodities necessary to our war effort. In some cases the job is one of simple procurement; in others it is a question of finding shipping space; but in still others, it involves developing new sources.

In losing much of the Far East we lost our main source of several commodities. The Office of Imports

ECONOMIC WARFARE

is now working hard to develop new sources to replace our loss. In some countries we are taking steps to increase the efficiency of mine operation. In some cases we are furnishing labor to areas where it is lacking. In other cases we furnish machinery.

The Office of Imports conducts the extensive preclusive buying program. This gives us goods we need and prevents them from getting into the hands of the Axis.

Imports are paid for by the Reconstruction Finance Corporation, but the purchases are all made upon the recommendation of the Board of Economic Warfare after consultation with the War Production Board.

The Office of Economic Warfare Analysis is primarily a staff intelligence agency. The source of Axis raw materials and the routes over which they are transported are studied; and then action, either military or economic, is recommended so as to strike at these sources in the most vulnerable spot.

Studies are being made of enemy industries, and recommendations are made to the Army and Navy with regard to bombing programs. This directs the attack to the plants most vital to enemy production. Often the bombing of railroads to prevent raw materials from reaching a factory is just as effective as bombing the factory and sometimes is easier.

This Office studies areas which our armed forces may occupy, to determine the extent to which they can obtain supplies locally. Data are being compiled regarding territory which is now in Axis hands and which we hope before long to reoccupy. This will be of great help to the Army in the military administration of these areas.

This Office is staffed by technical experts who know from experience the strength and weaknesses of the enemy; using the most up-to-date information available, they map the strategy of blockade and supply for the war.

Perhaps it is significant that the Board is sometimes erroneously referred to as the Board of Economic Welfare. It is trying to promote the economic welfare of the United Nations and coordinate economic and military activities into a united effort. At the same time it is seeking to do all possible to damage the economic welfare of the Axis nations.

To give you an idea of how the Board of Economic Warfare functions, I will outline a hypothetical case.

Copper is a material urgently needed in our war effort, and the War Production Board finds that the supply available is insufficient to meet the requirements; so it asks the Board of Economic Warfare to try to get additional copper as soon as possible.

The request goes to the Office of Imports, who then requests the Office of Economic Warfare Analysis to

furnish information as to where additional copper might be obtained.

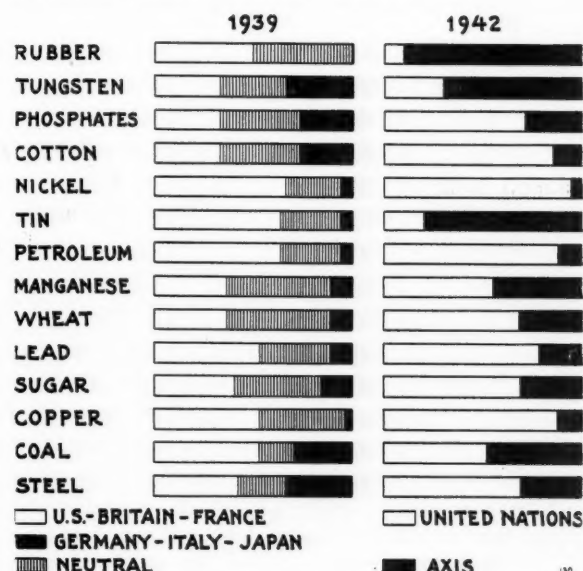
As a result of the information received from this office, and from reports from men in the field, the Office of Imports decides that Brazil offers the best possibilities both for opening new mines and for increasing production of existing ones.

A survey is made to determine the methods to use and what machinery will be required. The Brazilian government is contacted and arrangements are made whereby Brazil agrees to sell to the United States all her copper. However, Brazil is experiencing difficulty in disposing of her cocoa crop, and this is upsetting her national economy. So in the agreement she insists on a clause by which we agree also to purchase a certain percentage of her cocoa.

The Brazilian copper companies now place their order for the necessary mining machinery. The Office of Exports then steps into the picture to obtain the necessary priorities from WPB for the material required for the manufacture of this machinery. Then an export license is issued and the Office of Exports follows the job through until the machinery is on a boat for Brazil. This has involved contact with the War Shipping Administration to get the necessary shipping space.

Finally copper and cocoa start coming in and the Board of Economic Warfare calls on the Reconstruction Finance Corporation to pay the bills. If we don't need the cocoa, and the shipping space is at a premium, it might be put in storage in Brazil.

This is a hypothetical case but illustrates how the Board of Economic Warfare operates. Some cases involve only certain phases of this example, but in all cases the object is to get needed materials and also to prevent them from going to the enemy.



"Manna From Heaven"

By

LIEUTENANT COLONEL G. A. HARVEY, *Infantry*
Instructor, Command and General Staff School

Operations of World War II have rapidly become problems of planning and logistics, more so than in any previous conflict.

The distant site of operations, the speed of action, and the rapid development of air facilities have made the problems of supply and resupply of paramount importance.

It is true that with increased ship building and air transport manufacture our supply problems are solved in part, but much is to be accomplished before we may say that we are ready for action anytime anywhere.

Supply by air is becoming increasingly important. We are supplying daily, by air, troops in Iceland, Greenland, Alaska, Africa, Australia, the Islands of the South Pacific, and in many other places.

But have you given serious thought as to how we may supply isolated units?

It is true that we are told that such units will be supplied by air—either by use of cargo planes, gliders, or parachutes. The first two methods are ample and adequate IF adequate landing fields are available, IF we have air advantage, and IF we have sufficient quantities of resupply items and equipment so that some losses will not effect our successes.

The American people are air-minded as has been evidenced by the rapidly expanded and improved air force. However, the best equipment flown by the best pilots cannot alone succeed in assuring supply by air.

Major E. M. Lightfoot, AC, Instructor at the Command and General Staff School, in his conference on "Supply of Ground Units by Air" states:

"Let us consider some of the characteristics of supply by air.

"Supply by air is primarily characterized by freedom of movement over terrain which is inaccessible to or impassable to normal means of transportation or through which normal movement is denied by enemy air or ground activity. A favorable characteristic is its speed, but it is not faster than other methods of supply until the planes are loaded and in the air. The coordinating and planning of movement and the preparation of supplies to be moved to points of departure for subsequent delivery requires as much, if not more, time than ground methods.

"The limitations of supply by air are those factors limiting the use of aircraft.

"The availability of adequate and suitable aircraft, with necessary equipment and crews within

the time limit allowed by the situation, is a definite limitation.

"Ground facilities at the point of departure, intermediate points, and points of destination are necessary when delivery is to be made by air. When delivery of supplies is made by parachutes, ground facilities at the destination are not a consideration as no landing is contemplated. When landing fields are not available for the landing of cargo aircraft the delivery of supplies by air is limited to delivery by dropping with or without parachutes."

Weather is a definite limiting characteristic, since it seriously affects navigation and visibility.

Enemy activity too must be considered as a limiting characteristic because air advantage must be present in order to successfully accomplish air supply. This is of utmost importance.

Special equipment is necessary for such operations, and the equipment needed for a particular situation varies with the quantities and types of supplies required.

Airplanes and gliders for air supply or resupply should possess weight-carrying characteristics and be especially equipped. In addition they should be capable of speed to provide maximum safety from antiaircraft fire and, if possible, to permit completion of the mission before enemy fighters can attack in force. Necessary instruments should be items of standard equipment to assist in ground identification and the location of the forward area or dropping point. Radio and signal equipment for air-ground communications, recognition, and identification should be the finest type procurable.

There must be at least one door or other opening in each craft of suitable size and location so that supply packages can be safely discharged when delivery is made by parachute and must have a static line anchor cable for attaching the parachute static line snaps.

To further quote Major Lightfoot:

"The planes should also have the capability of speed as low as 120 miles per hour to prevent the collapse of parachutes on opening and to secure as short a landing pattern as possible when delivery is made.

"Sufficient service troops must be available at the supply base to load the supplies. These troops should consist of selected personnel who have had special training in air supply. They should be ex-

perts in packing equipment, parachutes, wrapping and packaging of supplies in all types of containers, rigging equipment containers for dropping, loading of all types of airplanes to include the compilation of safe loads for various types of aircraft, and the distribution of loads and methods of lashing. They should also be trained in the ejection of containers while in flight, jumpmaster technique including ground identification from the air, correct timing and calculation of drift and the maintenance and repair of special loading equipment, parachutes and delivery containers."

Air supply is not a cure-all for all supply problems facing a ground force. Air supply or resupply missions to be accomplished are limited since the supply of ground units by air is an **EMERGENCY MISSION ONLY**. *Routine use of troop carrier airplanes for supply and resupply is costly and is not anticipated as routine procedure.* The normal mission for air transportation as a method of supply for other than airborne troops is to resupply units which have been cut off from normal channels of supply by terrain, distances, or enemy activity.

Resupply by air is anticipated for the support of paratroops and air landing troops behind enemy lines; for armored units which have penetrated enemy lines; for forces operating in mountains, snow, jungle, or desert where movement of ground transportation is prohibited; for units which have been cut off or encircled by enemy activity; and for a force when the need is urgent and normal supply channels have been disrupted or have not yet been established.

Communications play a vital part in the air supply of ground units. Both ground and air personnel must be thoroughly familiar with communications, mutual recognition and identification so that the supplies may be dropped where needed. Advance planning and preparation is without purpose when coordinated activity between air and ground forces does not permit identification of the ground units by air units. Transport planes on supply missions ordinarily fly at low altitudes and at great speed making ground identification difficult. Then, too, if aircraft are not properly identified they may be fired upon by friendly troops.

It is readily recognized that it is necessary that ground troops, without exposing themselves to hostile aviation, indicate their location on the ground. Radio communication alone has not proved adequate for this purpose and great reliance must be placed on visual means.

It has been repeatedly demonstrated that success in modern war springs from the coordinated activities of the air and ground team. It follows that the successful completion of a mission to supply ground units by air demands the coordinated activity of the ground, air, and services of supply units

involved. Successful coordinated activity is obtained only through combined training and detailed practice. Team training in the air supply of ground units will come only through practice in carrying out various missions under simulated combat situations both in daylight and darkness.

Two examples from World War I are emblematic of success or failure of the supply of isolated units.

Look at the historic example of the Lost Battalion. This unit for days fought without food, water, or replacements. Panels were displayed, messages dispatched, pigeons released, and visual signals used, but to no avail. Identification of the location of this unit was impossible. Fake panels were displayed by German troops and supplies dropped on their locations. The attempt to resupply this unit was a failure.

But on the other hand during the battle of the Piave, during the last Austro-Hungarian offensive in June 1918, the Austrian troops, having succeeded in crossing the river at the cost of immense human sacrifices, were supplied by air since supplies could no longer reach them over the bridges they had crossed which had either been washed out by flood waters or had been demolished by the accurate fire of Italian artillery.

After World War I, compelled by exigencies arising out of readjustments in Libya, airplanes were used to support Italian troops over desert areas at great distances in short periods of time. And remember that these successes were at a time when aircraft were not considered safe or efficient.

These are but examples that have nothing to do with the logistics of World War II but which are an indication of the changing tactics and the possibilities of supply by air.

While aviation, as such, has not revolutionized the logistical organization of any Army, it has provided the means to take care of unforeseen needs of troops in action and of the action itself. In fact, aviation will in time bring about conceptions of operations that heretofore have been believed to be impossible.

Such an idea seems possible when all branches of the services are being trained for their special missions. Especially is this true in this war of rapid movement, rapid decisions, and where the time factor takes precedence over the economic factors of cost of transportation, possibility of loss of supplies, and the ever impending possibility of loss of equipment and personnel.

You may ask what makes the supply of isolated units so difficult.

First, we must consider air opposition. If air advantage has been attained, then supply by parachute is practical. If air superiority has been attained and landing fields are available and sufficiently well protected, supply by cargo transports or gliders is the answer.

However, in the case of isolated units surrounded by hostile forces or cut off on small islands, we have an entirely different problem.

Transports and gliders are definitely out of this picture; and as parachutes can not be released from great heights with any degree of accuracy, certain developments must be made to accomplish resupply of such units.

Dropping supplies with or without parachutes is practical only as an emergency method and is the method best suited to the supply of small units.

Identifications must be secured through means not readily subject to deception or identification by hostile forces. Communication facilities must be improved and many developments must be made in packing of supplies and for their subsequent delivery to the units.

But let us look at some Axis experiences.

The Italians in their operations in East Africa were the first to make any substantial contribution to air supply technique since World War I and the first to set up an organization for this purpose.

Bread, sacks of meal, dressed beef, potatoes, sugar, coffee, drinking water in drums, medical supplies, cigars and cigarettes, mail bags, cash for the commands, clothing accessories and spare parts for motor sections, and everything else that might be needed were transported by their air service to serve an entire army corps.

This service of supply permitted operations which were amazing for their speed, for the masses of troops taking part, and finally for the decisive strategic consequences which influenced the entire course of the campaign.

Some supplies were placed on landing fields while others were dropped by parachutes.

Rations and supplies of a less delicate nature (bread, canned meats or preserves, tobacco, dried vegetables, clothing, blankets, etc.) were placed in sacks which had an outer protection of either hay or pressed straw. For more delicate supplies (sugar, chocolate, coffee, tea, preserves, fresh vegetables, solid medicines) parachuting was done by means of special containers. These containers were either strong sacks of sailcloth having a capacity of 50 to 150 pounds or were metal drums having a capacity of about 400 pounds. The size of the parachutes correspond to the weights. Liquids in small quantities were placed in canteens holding about 2.1 quarts. These canteens were first protected by a covering of rubber sponge before being placed in sacks. If the liquid quantity was larger, it was loaded in a metal drum. There were special types of these drums. One, for instance, had a compartment to hold solids and another for liquids with a combined weight capacity of 400 pounds. Another single compartment was exclusively available for liquids and had a capacity of about 800 pounds.

The sacks, which contained less delicate supplies,

and the special (liquid) containers, according to their weight and volume, were loaded on reconnaissance and bombing planes either inside the fuselage or in the bomb racks. The parachutes opened automatically when the pilot pulled a rope attached in some suitable place within the plane.

After the loading was completed, the planes took off for the locality for which the supplies were destined. If landing was out of question, parachuting was utilized. The troops operating in territory unsuited for landings would prepare a "dropping field" on which, by means of strips of white cloth, they formed the word "provisions." The planes passed over the spot at reduced speed and at a low altitude parachuted the sacks. The special containers were dropped from a higher altitude, about 1,000 feet, to permit the larger parachutes to open.

These operations as you can appreciate were not carried on against air opposition.

The Ruggiero column, during its legendary march through the infernal Dencali Desert, a region without water and having a temperature of 150 degrees, covering a distance of approximately 500 miles received its supplies also by airplanes. Since the high temperature did not permit the transportation of dressed meats, the planes carried live cattle which were dropped to the column by means of parachutes.

When Addis Ababa had been occupied, the presence of the troops of occupation, in a desolate and ransacked region which could not even offer any sort of resources to its own population, heightened the crisis of the provisioning problem which could not be solved by the use of railroads or motor transport. At that time, scores of airplanes transported food and medical supplies from Asmara to the capital of Abyssinia. The largest item of supplies transported was food which eased the difficulties of the initial period of occupation.

The above examples are sufficiently eloquent to require no further comments.

Supplies of various kinds, either landed or dropped by parachute (food, ammunition, clothing, medical stores) either for the troops or for the civilian population amounted to 3,281 tons in the period from October 2, 1935 to March 31, 1937.

The Germans have also been quite active in the recent development of air supply technique.

Two types of containers have been used by the Germans for the supply of weapons, ammunition, food, etc. to parachutists: namely, those which are designed to be stowed and dropped as bombs by bomber aircraft and those which are carried with parachutists in troop-carrying planes. The latter are by far the more common type and have been identified in three different models:

a. A cylindrical container 5 feet long and 16 to 18 inches in diameter, hinged along its length so that it can be opened in half.

b. A container of the same length but of square sections 16 by 16 inches with beveled edges.

c. A container similar to the above but hinged along one edge so that it opens in half.

All of these containers are dropped in a similar manner. The parachute is attached to the end of the container which has a cylindrical projection slightly smaller in diameter than that of the body of the container and approximately 4 inches deep. Inside this ring, there are two brackets or handles for the attachment of the parachute lines. It is not known for certain what device is used for obtaining a quick opening of the parachute, but it is believed that there is some small explosive charge fitted with a fuze giving a few seconds delay. The other or lower end of the container is reinforced by radial stiffening ribs, which end in a circular flange about $1\frac{1}{2}$ inches in diameter. The size of the parachute is such that containers fall at an approximate speed of 26 feet per second. To take the shock of falling on hard ground at this speed, they are provided with a shock absorber screwed into, or clipped to, the circular flange at the lower end. This is a cylinder, 15 inches in diameter by approximately 18 inches deep, made of a light metal with the appearance of aluminum, and corrugated in the plane of the flat surfaces. When the container lands, the metal cylinder is crushed and thus absorbs the impact. This cylinder can be replaced if and when the container is recovered for reuse.

The British also have made experiments and are rapidly developing their technique of air supply.

In a search for light weight material for containers in which supplies can be dropped, the British have successfully experimented with wicker baskets. They find them strong, light, compact, and cheap and on the whole very satisfactory.

Experiment was made with wicker laundry hampers which have proved quite satisfactory and capable of withstanding rough treatment. Such hampers weigh approximately 60 pounds empty and can be loaded with up to 300 pounds gross and are dropped on 25 foot parachutes.

A telescoping basket weighing approximately 45 pounds also has proven quite satisfactory. This basket is 30 by 21 by 25 inches, interior dimensions, and insures tight packing.

It is intended to use these baskets for supplying replenishments of all classes of items that can be packed in them. Initial supply of all items is dropped in metal containers at the time of descent of paratroops. These containers are easily handled by four men by means of handles conveniently placed and are readily loaded onto $\frac{1}{4}$ -ton trucks. A delayed opening device is being considered for parachutes

for the resupply baskets that will permit their being released from safe heights with the parachutes opening under 500 feet. The opening device is said to operate on pressure. So successful has wicker proved as a container material that it will be tested as a standard shaped container for use on bomb racks.

Most experimentation so far has been made anticipating dropping of supplies with parachutes from medium or great heights. However, the mention of containers placed in bomb racks appears to be the most logical and should be carefully studied and developed.

Dive bombers loaded with supply package containers with or without parachutes seem to be the answer to our problem. The bombers, using bomb sight equipment can come in and release their cargoes and be on their way in a matter of seconds. Such delivery will be much more accurate than when supplies are released with parachutes from varying height. Drift of wind currents will not seriously affect the descent, which should not be over 500 feet, and the fire of hostile troops will not be as effective.

However, before this can be accomplished, containers must be designed that will withstand considerable shock and be sufficient to protect the contents. Pictures have been seen in news reels showing packages dropped from low flying planes in the South Pacific islands, which when dropped were badly damaged. We cannot waste supplies by such methods nor run the risk of losing planes and materials by such tactics.

We must also develop our radio sets to a higher degree of efficiency, making them more compact and capable of withstanding hard usage.

The Japanese in their invasion of the Pacific were equipped with portable radios of such light weight that they could be carried around the necks of their officers. These radios were of sufficient range so that the landing forces were in constant contact with the air forces.

The training in the use of visual signal aids must be emphasized. Development of infra-red or similar type signal lamps would be of material help.

We must also have intensive training in combined operations. The Army, Navy, and the Air Corps must have intimate knowledge of the capabilities and operative possibilities of the other branches.

Many lives may be dependent on such cooperation and too careful planning cannot be made.

Picture to yourselves the effect of successful resupply of an isolated unit. Would it not be comparable to the reaction of the children of Israel who, during their 40 years of wandering in the wilderness and in the deserts of Arabia, were given "Manna from Heaven"?

Keeping a Fund is Duck Soup

By

MAJOR JACK W. RUDOLPH, *Infantry*
Instructor, Command and General Staff School

Perhaps no other single item of administration is conducive of more serious trouble than the management of a company fund. The unfortunate part of this situation is that most of the trouble can be easily avoided if the custodian will only exercise a little common sense and devote a little time to his fund, particularly from the very outset. Carelessness rather than dishonesty is responsible for 99 percent of the trouble.

The first rule of a commander assuming responsibility for a fund (particularly for the first time) is never to be afraid of it. He has far more serious responsibilities. If he familiarizes himself with the mechanics of supervising the fund and keeps it up to date, he will have no trouble from that source.

The information necessary to run a fund efficiently can be found in three documents. TM 12-250 (Administration) discusses company funds in a general way, and AR 210-50 covers them in detail. Also, the company fund council book itself contains much valuable information. If, upon assuming a fund, you will read these manuals and regulations carefully and then follow their simple rules, you will be all right. If possible, have copies of TR 12-250 and AR 210-50 available for reference at all times.

Having familiarized yourself with the regulations governing funds, you should adopt one important rule and live up to it. *Never receive a penny for the fund and never pay out a penny without making the proper entry in the council book at once.* If you put off this step you are only asking for trouble, because you will probably forget it and gum up your bookkeeping. Nothing is so nerve wracking as the job of finding out why your bank statement doesn't balance with your council book totals.

Upon making a payment or receiving money for the fund, a voucher is mandatory to cover every transaction. This voucher need only be the duly receipted bill for which payment was made or it may be a certificate of a party to the transaction. In any event every fund transaction must be supported by a voucher. While it is possible, and frequently it is a practice, to wait until the end of the month to prepare vouchers in time for an audit, much time and effort will be saved by preparing vouchers as quickly as possible after a transaction has taken place. If vouchers keep pace with council book entries, the fund may be quickly and accurately closed at any time with a minimum of effort.

Paragraph 48 of TM 12-250 utters a vital warning

to all custodians that should be gospel for everyone connected with company funds. "Every transaction," it states, "should be handled with the most scrupulous attention to detail. Failure to observe these and similar precautions has ruined the career of many an officer." While at first glance these details may appear picayune, it must be remembered that fund keeping procedure has grown up through long experience and is designed to protect the responsible officer as well as the fund itself. The rules are simple and if followed will afford such protection. If neglected, the results can be tragic.

Remember, that fund responsibility is a duty that cannot be delegated. While it may be possible to place the task of maintaining the council book and fund records in the hands of a subordinate officer, the custodian himself is accountable for every cent and in self protection should know the status of his fund at all times. Under no circumstances should the fund ever be turned over to an enlisted man, whatever his honesty.

Another point—don't keep a large amount of cash on hand and *never* mix such cash with personal funds. If at all possible, don't keep any cash in your possession. Bank it at once and carry on your business by check—the check book and cancelled checks make excellent supporting evidence and greatly simplify your bookkeeping.

In your bookkeeping be neat and meticulous. A neat council book and well prepared vouchers are almost invariably an indication of a carefully handled fund and pay dividends at inspection. On the other hand, a sloppy book, incomplete or poorly prepared vouchers, and carelessness in handling cash will result in mistakes and "skins" at periodic audits.

The method of keeping a fund is simple and requires little time if properly followed. Ten minutes a day spent on it will save many hours of perspiring at the month's end and may save considerable money and trouble—serious trouble—as well. Too many officers make a nightmare of keeping a fund when a minimum of effort will keep everything running smoothly.

In conclusion, follow these simple rules and you can't go wrong.

1. Know your regulations and follow them.
2. Never make a transaction without recording it immediately.
3. Be neat in keeping your records.
4. Pay attention to details.
5. Never mix fund money with personal cash.

KEEPING A FUND IS DUCK SOUP

6. Keep little or no cash on hand—if possible do all business by check.
7. Never try to delegate responsibility—it can't be done.
8. Keep your fund up to date.

The above items are no more than an expression of

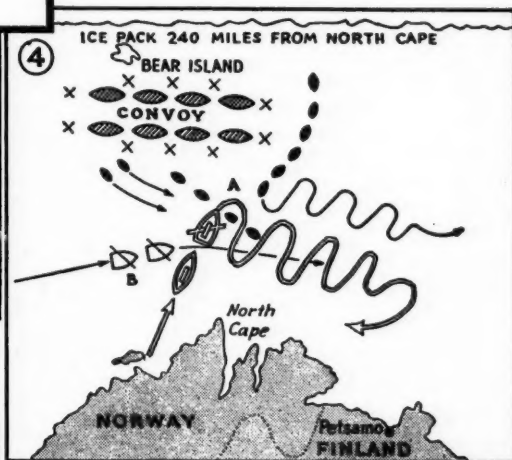
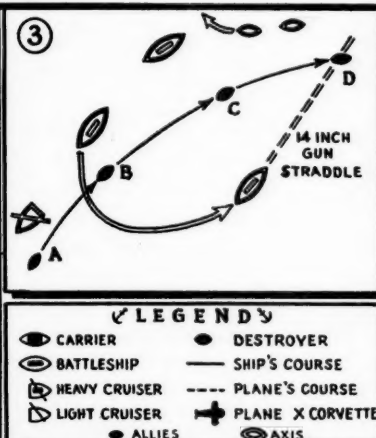
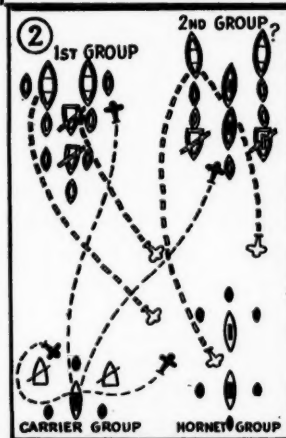
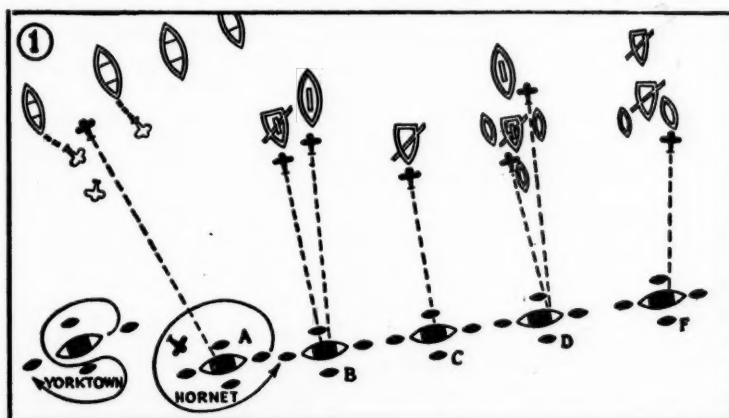
the care a man takes with his personal funds or property. If followed, they will keep you out of difficulties, make fund maintenance a light burden, and will pay dividends to your outfit in benefits which only an efficiently administered fund can give and which are, after all, the only purpose for having such a fund.

Four Actions That Illustrate New Naval Tactics

BY

ADMIRAL WILLIAM V. PRATT, UNITED STATES NAVY, *Retired*

(Reprinted from *Newsweek* 25 January 1943.)



SKETCH 1. Hornet at Midway, June 4-6, 1942. (A) June 4, 9 a.m. Hornet Torpedo Squadron 8, unescorted, attack four carriers 150 miles away. Hornet fighters help against Jap planes over Yorktown. (B) June 4, 6 p.m. Dive bombers hit battleship and heavy cruiser. (C) June 5. Planes seek carriers, find and attack light cruiser. (D) June 6, morning. Dive bombers hit battleship, heavy cruiser, destroyer. (F) June 6, afternoon. Two cruisers, two destroyers attacked.

SKETCH 2. Hornet at Santa Cruz, Oct. 26, 1942. Dive bombers contact enemy, fight through Zeros to hit a carrier seven times. Both Jap groups concentrate on Hornet, do such damage she is abandoned and sunk by our forces. Dive bombers and torpedo planes from our carrier group hit Jap carrier and battleship, torpedo cruiser.

SKETCH 3. Running battle of destroyer Laffey. (A) Laffey gunfire puts Jap cruiser out of action. (B) Laffey torpedoes Jap battleship, blasts bridge off by gunfire. (C) With one Jap battleship on port beam, second astern, two Jap destroyers on port bow, Laffey puts one destroyer out of action and second explodes. (D) Straddle by 14-inch shells, burning Laffey explodes.

SKETCH 4. Barents Sea battle, Dec. 31, 1942. (A) Germans make contact. Corvettes guard convoy. Two destroyers attack enemy destroyers, remainder attack pocket battleship and heavy cruiser, stave off four attempts to get at convoy. (B) British cruisers reach scene, open fire at 14,000 yards, score hits. In low visibility Germans escape to Norwegian base. (Entire convoy reached Russian port without loss or damage.)

Civilians Learn at Leavenworth

By

LIEUTENANT COLONEL FRANCIS R. SWEENEY, *Coast Artillery Corps*
Director, Army Orientation Course

There are few homes, few businesses, few professions not affected by the Army's expansion, but there are fewer still who understand the functioning and the problems of this Army which has so influenced their lives. To meet this lack of knowledge, the Command and General Staff School now conducts the Army Orientation Course to enable selected business and professional men better to understand the nation's war problem and the relation of the total civilian effort.

Started in November 1941, the continuity of the courses was interrupted by the pressure of the first months of war, and the second class was not held until October 1942. The War Department now plans to conduct similar classes, each of approximately ninety men, during the last four weeks of each General Staff Course until a total of about five hundred top-flight civilians have attended. Their dissemination of the story they have heard, when they return to their own communities and occupations, means that the information eventually will get to thousands of our people.

The caliber of the men who give a month from their busy lives to study at Fort Leavenworth is adequate proof of the value of the course and of the eagerness of our people to learn of the Army's problems and to cooperate in their solution. The students live and mess on the post and follow the same rigorous schedule of classroom work and home study as the officers in the General Staff, Services of Supply Staff, and New Divisions courses.

The class rosters have included an architect from California and a paper manufacturer from Maine, a grain dealer from Minnesota, and a banker from Texas. There have been other men from the banking and investment field, from communications and broadcasting, and from construction and construction materials lines. Engineering, foodstuffs and livestock, government officials and insurance executives have all been represented. Labor organizations have sent men from high in their structures; journalism, printing, and publishing have supplied representatives from large metropolitan dailies and smaller city newspapers, from the national press associations and from large publishing concerns; and merchandising and service activities have had executives enrolled from numerous branches. Transportation and electric utilities have been represented by other students, and the professional ranks have sent attorneys and clergymen, educators and doctors, to attend the school. Manu-

facturing concerns have supplied top officials in more than a score of lines.

Students are instructed in the general aspects of the United States at war and its military organization as correlated to the national war effort. The course presents a general picture of the operation and functions of the combat forces, ground and air, in this country and overseas, in sufficient detail to show the problems and needs of the troops. It then presents a summarization of the organization and operation of the Services of Supply and of associated non-military agencies, particularly with regard to those activities bearing upon civilian programs and production. General subjects are presented as necessary to constitute a foundation for specific instruction, and current operations are surveyed as a matter of general interest.

At the beginning of the course students receive instruction in military symbols and terminology, map reading, and the use of reference texts to facilitate their work during the rest of the course. They are taught the organization of large units, the theories on which task forces are composed, and the organization and technique of the various arms. Staff work is demonstrated and problems of logistics are worked out with the class, and map exercises are presented which show the combat methods of infantry and armored divisions, of air forces, and of air support of ground troops. The course next describes the organization of the SOS and of the various services and develops the general phases of Supply and Procurement, Personnel, Internal Security, and Transportation.

With this background, the class then participates in the planning for and operation of an overseas expedition and hears a discussion of the general aspects of organizing and running a theater of operations.

Members of the first three classes have come from thirty-four states and the District of Columbia and from thirty-five broad occupational fields, but there were few of them who had more than a general idea of the magnitude of the Army's job or the scope of its problems. Their reaction was unanimously one of amazement at the size of the undertaking and of admiration for the manner in which the armed forces have planned for and are carrying on the operations.

The course supplied the answers to many questions which had concerned the students in common with other members of the civilian community as a

CIVILIANS LEARN AT LEAVENWORTH

whole. They knew, for example, that gasoline is scarce and driving is curtailed on the east coast because of the demands of the forces overseas; however, when they had worked out problems which showed in complete detail and staggering totals the daily gasoline consumption of an armored division or a type air force, they saw with complete understanding how great those demands really were and the reason why changes in civilian economy had to be made.

Manufacturers whose programs had undergone sudden and sometimes unexplained changes, industrialists whose production had been halted and shifted understood the reasons for such switches as they saw unfolded the strategical and tactical situations upon whose changing and sometimes unpredictable requirements the supply program is based. Educators perceived in the Army's need for men and for specialized training the reasons for decreased enrollments and for changed curricula. Bankers became aware of the multiple needs of the Army and of the demands which these would make upon the manufacturing concerns which they finance. Newspaper editors found a new meaning and a new significance for terms which appear in their reports and an over-all understanding of the war's picture which gave them a more comprehensive understanding of the stories they receive. And all of them, as fathers and brothers and employers, achieved an enhanced understanding and respect for the manner in which the Army receives, classifies, assigns, and trains the young men whom they know in the service.

The presence of the class at the School is beneficial not only to the civilian members of the class but to the Army as well. Each group has included men who were experts and leaders in their particular fields, who contributed information as to problems which have concerned them and the Army alike. To cite a few, the president of one of the country's largest meat packing concerns told briefly, in a discussion of dehydration, of drying and shipping meat; a psychologist who had helped to develop

them described the basis of the Army General Classification Tests; the president of an important air line contrasted the possibilities and limitations of air transport; and an official of a major radio chain spoke of the experiments being made to allow broadcasting stations to remain on the air without betraying their location during possible attack by enemy aviation.

The courses have resulted in a better understanding by military and civilian personnel alike of each other's problems. Our people are ready to extend full cooperation to and support of the Army's aims, once these are made known to them as they are by the Army Orientation Course. They will give such backing as is shown in the following quotation from a letter initiated by a member of one class to all other graduates, calling their attention to a bill introduced for an Office of War Mobilization:

"Dislocations in our economic structure are evident. Many businesses have suffered and certain localities have been hard hit. These things, however, are inevitable in a project as vast as the present one and many such occurrences are unavoidable no matter who directs production of weapons, unless such authority subordinates military necessity to the expediences of politics and local pressure groups.

"To accomplish a proper flow of munitions, production schedules often must be promptly changed to meet the varying need of task forces and combat operations. Programs must be revised without delay in conformity with changes in a military situation. *These things cannot be done with dispatch and decision through the complexities of dual, civilian-army, control.*

"I personally believe that all who attended the 2nd A.O.C. are convinced that the existing organization of the Army is as satisfactory a machine as we are capable of producing in this country at this time for both combat and supply and it would be nothing short of disastrous to change our course now even if a possibly superficial examination showed it to be theoretically desirable."

It is a false notion that subordination and a passive obedience to superiors is any debasement of a man's courage; far from it: indeed it is common knowledge that those armies which have been subject to the severest discipline have always performed the greatest things.

—Field Marshal Count Saxe.

A-2 at Work

By

MAJOR B. G. DILWORTH, *Air Corps*
Instructor, Command and General Staff School

*What is an "A-2"; Who is He; How
and With What Does He Work?*

Intelligence officers of army air force units down to and including Wings are now designated as "A-2"; group and squadron intelligence officers are designated as "S-2's."

Since the start of the present war, the Army Air Forces have undergone major reorganization programs, so much so, in fact, that it is difficult to draw comparisons between A-2 problems now and then.

The vast expansion of the Army Air Forces likewise has called for hundreds of intelligence officers for staff duty with AAF units of all kinds. Their training has been, and still is, one of the major training problems of the AAF.

There is no mystery connected with A-2's work. His job is essentially the same as a G-2 of any corresponding Army Ground Forces unit. He must secure all possible information of the enemy, convert that information to *intelligence* of the enemy and promptly disseminate it to all concerned, including ground forces and possibly naval units.

A-2's agencies may vary with the type of unit concerned, but the intelligence methods and procedures will change but little, if at all.

It must be remembered as a point of difference between the problem of A-2 and a corresponding G-2 that, due to the range and speed of the airplane, A-2 is concerned with an area many times greater than is his ground contemporary. A bomber command, for instance, is comparable in size and the rank of its commanding general corresponds to an infantry or armored division. Yet this same bomber command is operating in an area whose length and breadth is measured in hundreds of miles instead of miles or even yards.

A-2 in the higher echelons of the Air Force of Command has the following functions:

1. Supervises organization and training in intelligence in his own unit and in lower echelons, including:

- a. Intelligence procedure.
- b. Photo reconnaissance and photo interpretation.
- c. Reconnaissance technique.
- d. Recognition of aircraft and naval vessels.
- e. Preparation of intelligence training directives.
- f. Preparation and procurement of intelligence training aids.

- g. Conduct on capture and escape technique.
- h. Counterintelligence procedure.

2. Supervises maps and mapping:

- a. Maintains map index and map files, records of map coverage and map projects.
- b. Requisitions aeronautical charts for all units of the unit.
- c. Plans and requests photo-mapping missions.
- d. Coordinates with Engineer Officer on procurement and reproduction of tactical and strategic maps and on preparation of maps and charts from aerial photographs.
- e. Procures and distributes necessary air-route guides.

3. Initiates and prepares objective folders and supervises keeping such folders current.

4. Is responsible for assisting the commander and coordinating with A-3 in the matter of security.

5. Is responsible for the preparation and execution of appropriate counterintelligence planning.

6. Supervises censorship for the unit.

7. Supervises public relations.

8. Coordinates with the Weather Officer in securing and making available information as to weather.

9. Supervises collection and dissemination of "capture intelligence."

a. Prisoner of war interrogation (airmen).

b. Captured document and air matériel examination.

All these functions of A-2 have the single main purpose of enabling A-2 to keep his commander, the lower, and adjoining units (air, ground, and naval) informed as to the enemy air situation and also as to so much of the ground and naval situation as possible.

Cooperation between intelligence sections of adjoining ground and naval units is vital; A-2 of an air force in holding up his end of the team and in furnishing his own commander and lower echelons with intelligence has the following agencies available for collection of enemy information:

1. Every air mission, regardless of its assigned primary mission, has the additional job of reconnaissance. Crews are interrogated on return by squadron S-2's and mission reports are compiled and transmitted through channels to reach the air force A-2 in the form of consolidated mission reports. Important flash information is sent forward immediately without waiting for routine reports.

2. Photographic reconnaissance and photographic mapping squadrons are equipped for special photo work.

3. Bombardment aviation units—of the Bomber Command (these are capable of taking aerial photographs of mission results) and the Air Support Command.

4. Fighter Command units—including its anti-aircraft artillery and aircraft warning service units.

5. Air Support Command observation units.

6. Air Force Weather Service.

7. Capture Intelligence agencies—

a. Interrogation of prisoners of war, deserters, repatriates, and inhabitants by air force A-2, prisoner interrogation subsection.

b. Captured documents examination by prisoner interrogation subsection of air force A-2 section.

c. Captured air matériel examination by enemy matériel inspection subsection of air force A-2 section.

8. Signal Intelligence Service—listens in on enemy air units radio communication and obtains information as to their location.

In more or less stable situations where joint operations are being conducted, it is believed that the establishment of a Joint Operations Center can accomplish much closer cooperation between operating headquarters of ground, naval, and air force units. Where such Joint Operations Centers are established, A-2 of the air force and the A-2's of the Air Force Commands are still responsible for the collection, evaluation and interpretation and dissemination of *intelligence* as to the enemy air situation, but their work is aided by the close and constant touch with the naval and ground force representatives at the JOC.

A-2 of an air force or command is interested in any information of the enemy which affects the employment of his unit. He is primarily, however, interested in the enemy's air situation and his anti-air defense of all kinds. He must seek current information on the enemy's air strength in number of available operating airplanes of all types, their location and employment. This job is often referred to as compilation of the "Enemy Order of Battle"; it is essentially the "Status of Enemy Aircraft Board." Air crews must be briefed in the squadron on the enemy's anti-air defenses, anti-aircraft artillery positions, balloon barrages, searchlight belts and zones,

the enemy's fighter airdromes, the areas habitually operated, and their tactics.

The air force and command A-2's, with their many sources of information, are constantly checking these items and the results disseminated to lower units.

Vital targets are sought and all possible information concerning them compiled into "objective folders" for use of the lower echelons in planning operations and briefing of crews. New information on objective necessities constant revision of such folders.

No discussion of an A-2 at work could be complete without mention of the importance of aerial photography and photo-interpretation in air intelligence. Since the photographs themselves are taken by AAF units, it is to be expected that aerial photos and their interpretation would be fully utilized by AAF intelligence sections. Just how large a part this means of obtaining enemy information plays in air intelligence procedure, is not, it is believed, fully realized or appreciated even by most AAF units themselves.

Experience in the European Theater has shown the RAF that approximately 80 to 85% of all RAF intelligence originates with aerial photographs. We may point out the fact that the type of operations in this theater being almost entirely by air units, may be the reason for such a high percentage. However, with the training and establishment of photo interpretation units in other theaters, the percentage of air intelligence from aerial photos will greatly increase.

Recently, tables of organization have been approved for photo intelligence detachments as a part of an air force intelligence section. These detachments are so organized as to permit detaching units thereof and assigning them to lower echelons down to bombardment groups and observation units for first phase interpretation while strategic interpretations are carried out by the main detachment which remains at air force headquarters.

The A-2's work is never done; his section must be always alert; his value as a staff officer is as great as he chooses to make it. The same principles of staff procedure and cooperation apply to the A-2 and the rest of the air staff as in Army Ground Forces units. The geographical size of the area with which he is concerned is larger and many of his agencies deal with specialized subjects incident to air operations, but his primary purpose is still to prevent his commander from being surprised.

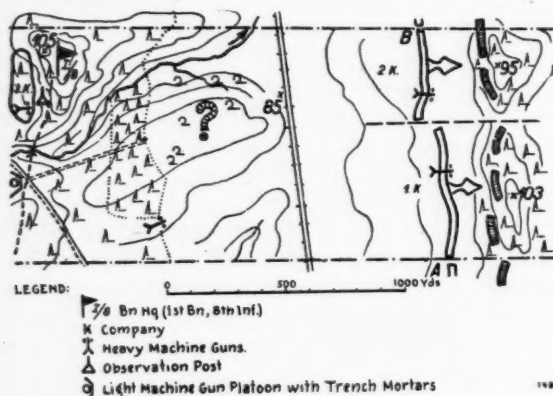
Capture of an Enemy Supporting Point

BY
FIELD MARSHAL GENERAL ERWIN ROMMEL, *German Army*

This article constitutes the field exercise covered in Problem 9 of Marshal Rommel's book Aufgaben für Zug und Kompanie which was published in 1940.—THE EDITOR.

Units: 1 rifle platoon, 1 heavy MG platoon, 1 light MG platoon, and 1 telephone detail.

Situation: (Given out in the Bn command post seen in Sketch 1).



Blue, attacking in an easterly direction, has taken the wood there after a hard fight in the course of the morning. See Sketch.

At the time, Blue's forward elements are fighting along the line A-B.

The two sides are fighting to gain superiority in the air. At the moment, a strong Blue pursuit squadron is pursuing enemy fliers in an easterly direction.

The 1st Bn of the 8th Inf Reg, supported on both wings, has attacked in the sector.

Right-hand limit, 650 yards south of here;

Left-hand limit, 150 yards north of here—running eastward.

The Bn staff, with the 3d Co and 1 heavy MG platoon forming the Bn reserve, has reached this edge of the woods 10 minutes previously. There are located here (see Sketch) :

The Bn command post . . .

The 3d Co: Leader of Co Hq detachment . . .

The 1st, 2d, and 3d platoons . . .

1 heavy MG platoon.

1 light MG platoon (placed under the orders of the Bn) occupying a position with the trench mortars at the road intersection 400 yards SW of here. We have just effected observation 50 yards to the right.

Impressions of combat: Sound of very lively fighting (MG and Arty fire) at a distance of about

100 yards. Enemy machine guns occasionally fire at relatively short range from this direction (east) and also from over there in the wood (NE). Just now, the lane in the forest to the right is being swept by enemy MG fire. A few minutes ago, enemy artillery fired about 20 shells over there in that clump of trees. Wounded are being carried to the rear in tent sections through the clearing in the wood up there at the left.

Ammunition situation: A full supply.

Mode of designation:

Our own troops: Have modern equipment.

COURSE OF EXERCISE AS PLANNED

Part I: All elements calmly assume a disposition adapted to the situation. The commanders make all arrangements required by the situation that they had decided to adopt before the exercise had begun. When their respective units have occupied their combat positions, they report this fact.

Instructions for the enemy: Supporting point (see Sketch 2) will be occupied beginning at ---- o'clock. The time of opening fire will be announced by the neutral direction. Bursts of fire will be executed from time to time.

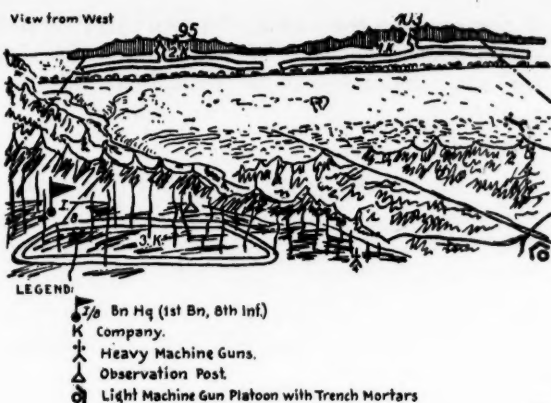
Umpires: Briefly note the commander's arrangements. They inform the Director thereof.

Part II: The exercise begins. Several enemy shells land at the edge of the woods. The troops occupying the supporting point fire in several directions. The Co commander gives oral orders to the commanders of the rifle platoon, heavy MG platoon, and infantry-gun platoon, who have been called forward by messengers, near the observation post of the light infantry-gun platoon:

"1. We have taken those hills over there . . . and the wood half way around to the left. In front of us, 200 yards east of the wood, and over there 20 graduations to the left of the forked birch, enemy elements are still offering stubborn resistance although they have been outflanked for a long time. Moreover, fighting is apparently still going on over there at the left in the wood. The enemy supporting point 200 yards east of the edge of the wood is giving the Bn a lot of trouble. It commands the entire area between the edge of the wood and the road. No heavy weapons, no supports, and no ammunition can be brought up, and even many of the wounded cannot be rescued and placed in safety.

"2. The Co has been ordered to take this enemy supporting point quickly, with the aid of the light infantry-gun platoon and the heavy MG platoon,

CAPTURE OF AN ENEMY SUPPORTING POINT



SKETCH 2.

which have been assigned to it for this purpose.

"3. I shall employ the 1st platoon in the front line.

"The attack upon the supporting point will be executed in the following manner: Preparation: The 1st platoon, creeping forward under cover, will reach that group of birches in the hollow 100 yards to the left of the supporting point over there . . . prepare to attack there, and report by telephone when ready. 1 telephone detail (placed at the orders of the platoon) will establish communication with the platoon during the advance. I expect the platoon to be ready to attack in about 40 minutes.

"While the 1st platoon has been creeping forward and making its preparations, the heavy MG platoon has been neutralizing and diverting the fire of the enemy occupying the supporting point with the fire of its two guns here and the two over there, while the light infantry-gun platoon is adjusting its fire upon the supporting point.

"The fire of heavy weapons for effect, and the attack:

"As soon as the 1st platoon is ready to attack, I shall set the time for the opening of fire by the heavy weapons (the hour X).

"At the prescribed hour X, the heavy MG platoon and the light MG platoon will beat the enemy lines with a brisk fire for 2 minutes.

"At 120 seconds after the hour X, the 1st platoon will attack, and the light trench-mortar platoon will adjust its fire. The heavy MG platoon will fire as long as it can do so without endangering the attacking platoon.

"4. I shall remain here at the infantry-gun observation post. Telephone communication will be established with the heavy MG platoon and the 1st platoon.

"It is exactly ---- o'clock.

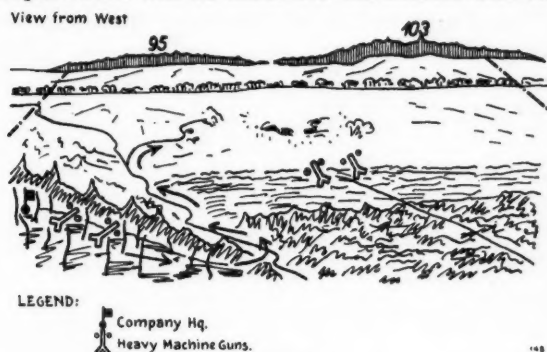
"Repeat missions."

The commanders of the 1st platoon and the heavy MG platoon proceed to their platoons and assign the missions received to their squad leaders and gun captains, respectively; they also make the preliminary arrangements for reconnoitering the ter-

rain and emplacing the machine guns.

The commander of the light infantry-gun platoon prepares to adjust the fire of his gun upon the supporting point.

The commander of the 1st rifle platoon, with 1 squad leader and 2 messengers, ascertains the possibility of approaching the enemy supporting point under cover, and reconnoiters the area in which preparations will be made for the attack. The tele-



SKETCH 3.

phone detail establishes telephone connection. As soon as the platoon commander has decided on the route to be followed and the point of assembly, he marches the platoon up to it. During this operation, special care must be taken to see that the enemy occupying the supporting point does not discover this movement. (Preventive measures to be adopted by the platoon commander: leave messengers behind to give warning in especially conspicuous places; the leader of the 1st squad, who has an accurate knowledge of the route, will be ordered to lead the platoon to its post under cover).

The platoon commander will report the results of the reconnaissance by telephone to the company commander, and will request the execution of an especially rapid harassing fire upon the supporting point by the heavy MG and light infantry-gun platoons.

In the meantime, the heavy MG platoon has opened fire and is neutralizing and diverting the fire of the troops occupying the supporting point, while the light infantry-gun platoon has begun to adjust its fire.

The enemy: Fires occasionally.

The observer with the enemy must note everything that can be seen of the Blue side and the Blue umpire.

Part III: The platoon, creeping forward in single file reaches the deep hollow 150 yards NW of the supporting point. The platoon commander, as the men reach the depression one after another, gives the squads the order to prepare and attack:

"Prepare while fully covered; do not observe the enemy; front . . . ; 1st squad there on that gravel . . . ; 2d squad over there . . . ; 3d squad over there . . . ; platoon Hq detachment come here to the telephones, squad leaders report to me."

He then gives the squad leaders, who are under cover, the following order:

"1. The supporting point which the platoon is to attack is located 150 yards over in that direction . . . I have reconnoitered the terrain between here and the supporting point. It is possible to get 50 yards nearer the supporting point by creeping through the hollow at the left. I have discovered enemy obstacles here and there.

"The fire of the troops occupying the supporting point is now being neutralized and diverted by the heavy MG platoon. The light MG platoon has already adjusted its fire.

"2. The 1st platoon, whose 1st and 2d squads will creep in single file through those bushes, will advance to the hollow 50 yards in front of us half way around to the left and prepare to attack the supporting point.



SKETCH 4.

"The 1st squad will advance on the right near those thick bushes.

"The 2d squad will advance on the left near that clump of birches.

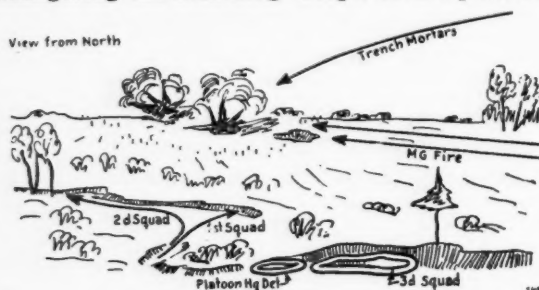
"The 3d and 4th squads and the platoon Hq detachment will remain here at the left in the flat part of this depression.

"The light machine guns and submachine guns will be prepared to fire while in motion.

"The squad leaders will report to me by raising the hand as soon as their respective squads are ready to attack.

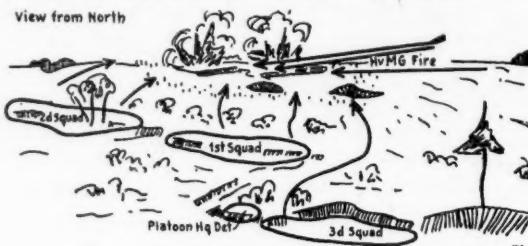
"As soon as I receive this message, I shall request the heavy and light MG platoons to fire for 2 minutes.

"3. When I signal with the handkerchief, the platoon will attack the supporting point silently, without cheering, in its present formation: the 1st squad being in the center and the 2d squad on the left. The heavy MG platoon is instructed to fire upon the enemy line as long as it can do so without endangering the attacking troops. If the platoon is



SKETCH 5.

fired upon during the attack, the men carrying light machine guns, submachine guns and rifles will sweep the supporting point with their fire until they have penetrated the enemy's position.



SKETCH 6.

"4. I shall advance to the attack on the right around that clump of bushes with the 3d and 4th squads."

The squad leaders repeat their missions and then proceed to their squads and there give them orders relating to the preparation and attack.

After this the squads creep to the assembly area.

In the meantime, the platoon commander has requested the heavy machine guns and light trench mortars to deliver a harassing fire for the next 10 minutes. He then proceeds to his post with the platoon Hq detachment. The telephone wire is laid.

The heavy MG platoon and the light infantry-gun platoon receive instructions from the company commander to execute a lively harassing fire while the 1st platoon is moving into the position from which it is to attack.

Enemy: Shell impacts are indicated by means of maroons (requested by the neutral Directors). The enemy delivers a rapid fire as soon as anything can be seen of the rifle platoon.

The umpires creep along with the men, and announce enemy fire and casualties.

Part IV: Fire for Effect by Heavy Weapons, and Attack.

The squad leaders report by raising the hand that they are ready to attack.

The commander of the rifle platoon reports to the company by telephone. The Co commander sets the time X within a second (for instance, 9:05 AM).

Beginning at 9:05 AM, the heavy MG and light trench-mortar platoons execute a harassing fire for 2 minutes.

At 9:07 AM the troops attack: The 1st squad is very soon forced to lie down by the fire from the supporting point, but the 2d, 3d, and 4th squads succeed in taking the latter.

The enemy: Indicate the fire for effect of the light infantry-gun platoon by means of maroons. (The time is announced by the neutral Director). When the attack begins, most of the troops occupying the supporting point are caught unprepared (not wearing steel helmets). 6 to 8 men defend the supporting point against the attack. When the attacking troops enter the position, these men, too, are out of action.

Why Is a Message Center?

By

COLONEL GLENN H. PALMER, *Signal Corps*

Instructor, Command and General Staff School

The sole purpose of the message center is to speed the transmission of messages.—FM 24-5

If you remember only the above sentence you will have the meat of this article. If you are in charge of a message center, you can do your job properly only if you keep that purpose constantly in mind. If you are a user of message center service, keep that sentence in mind for a spur in time of need. Before applying that spur, however, make sure that you have done *your* part in helping the message center to accomplish its purpose with regard to *your* messages.

Before refreshing your memory as to what is your part in the process, let me tell briefly how the message center is able to accomplish its purpose.

First, the message center is continuously informed as to the status of the several means of signal communication which may be available to the unit. When a wire circuit ceases to work, the message center is immediately informed. When the radio operator establishes communication with another station, he informs the message center. When static or other interference makes radio communication difficult, the operator informs the message center. When a messenger arrives from another command post, he goes to the message center, reports the location of the command post from which he came, and the condition of the route he has just travelled.

Having all this information, the message center is able to speed each message on its way by selection of the most suitable of the available means of signal communication. The short, urgent message may normally go by wire in the clear; but if there is a longer, urgent message ahead of it, it might reach its destination more quickly by motor messenger. That ammunition report may go by telegraph when ammunition is needed immediately; but it may go by the next scheduled messenger if there's enough ammunition on hand for today's action. If you mark your message "By messenger," because you know that the direct wires are out and radio silenced, the message center will send it by messenger; but if you leave it to the option of the message center chief, he may know of an alternate channel by which the message can reach the addressee well ahead of the messenger.

Perhaps you know a message center that failed to accomplish its purpose of speeding the transmission of the messages entrusted to it—there have been such message centers. What was the cause of that failure? Given the necessary personnel—which tables

of organization are supposed to provide—and appropriate means of communication, one very likely cause of that failure is the keeping of too much record. The reasons for keeping records in a message center are to enable tracing of messages and checking of content and because it must always be possible to locate any failure to prevent repetition. The officer in charge, and the commander served, must see that the records of the message center are the very minimum which will suffice if that message center's mission is to be accomplished.

You, as a writer of messages, can simplify the recording process by submitting an extra copy of each message, to serve as a record, and make unnecessary the preparation of a skeleton for the file. You, as a writer of messages, and as a recipient of messages, can make the message center's work go faster by not asking it to do things that it is not manned or equipped to do, such as the making of additional copies or the assembling and addressing of products of the mimeograph machine. Don't require the message-center chief, or any other message-center personnel, to determine what particular staff officer or officers are concerned with each message which comes addressed to the commander. That is a job for someone familiar with staff operation in general and the operation of your staff in particular. The routing of messages within the headquarters should be done by a "Distribution Center" having facilities for preparing any additional copies that may be needed, and for sorting out and addressing material going in duplicate to a number of addressees.

Any delay in message transmission caused by encoding or decoding of messages should not be charged against the primary message-handling functions of the message center. Cryptographic work is simply an incidental duty of the message center, which must be performed whenever a message is liable to be intercepted by the enemy, even though its performance tends to delay the message's delivery. The message-center chief has no choice in the matter; if the message is liable to interception by the enemy, it must be encrypted unless the originator, under proper authority, writes "Send in clear" on the message over his signature. It is you, the writer of the message, who must decide whether speed or secrecy is paramount, indicating your choice by the written authorization "Send in clear" or by the omission of that instruction.

You may object: "How can I be sure that my message will go as rapidly as I believe it should if I am not allowed to specify the means? In my business

at home, if I think a particular communication must go by telegraph in order to reach its destination in time to be of full value, I direct that it be sent that way. Why may I not do the same in my military communication?" The answer is: you may do the same in your military communications; but if you do, you may unintentionally delay the transmission of the message. In peaceful, civil life, the telegraph lines always work; but in the army in the field, that is not true. If you direct that your field message be sent by telegraph, that message may be delayed while the wire line is repaired or while the message center chief obtains your permission to send it by some other means. It will be better if you indicate any *special* degree of precedence—relative speed of handling—to which you believe your message is entitled, by marking the message "Priority," "Operational Priority," or "Urgent."

If your message relates to administrative matters, "Priority" is the highest precedence which you may give it. The "Priority" classification will entitle it to be sent ahead of any routine or deferred messages which are not already actually being transmitted as soon as messages of higher precedence are cleared.

"Operational Priority" may be a new classification to some of you. This classification, together with the still higher precedence of "Urgent," may properly be given only to messages relating directly to operations. "Urgent" may be used to report first contact with the enemy and subsequent amplifying reports which may *materially affect our plans* and must, therefore, be brought to the attention of the addressee

at the earliest possible moment. "Operational Priority" classification may properly be applied only to important messages pertaining directly to operations which cannot be classified as "Urgent."

In using these classifications as to precedence, you must be honest with all the other users of the signal communication agencies as well as with yourself. *Use the lowest precedence classification which will accomplish your purpose.* If the higher precedence classification is used too freely without justification, all communications will be delayed, and the purpose of all precedence classification fail of its accomplishment.

Another thing to consider: the need for speed in handling of messages does not always correspond directly to the rank of the originator of the message. A private in the rear rank of a reconnaissance unit may have occasion to send a message of importance equal to that sent simultaneously by the division commander, and the more important message must be transmitted first, regardless of the relative rank of the originator.

You may ask: "How can I be sure that when I do classify my messages properly as to speed and secrecy that they will be handled as they should?"

My answer is: "Only if your communication personnel is properly trained and properly supervised." They have their part to do, and you have yours. Communications will be of full value only if they are properly established, properly operated, and properly used.

The message center is the key to their proper use.

THE LOCATORS, organized under the auspices of the Women's Activities Group at Fort Leavenworth, Kansas, to provide current addresses of army officers' wives, are celebrating their first anniversary. Their files now contain the names of over 20,000 officers' wives scattered throughout the world, and their good work of making it possible for distant friends and relatives to keep in communication with each other is rapidly expanding.

(This is not an advertisement.—THE EDITOR.)

Foreign Military Digests

Digests of articles from foreign military periodicals; other items of interest from foreign publications are summarized in the Catalog of Selected Periodical Articles.

Defense of a Command Post in Street Combat

[Translated at the Command and General Staff School, Fort Leavenworth, Kansas, from a Russian article in *Krasnaya Zvezda* 30 October 1942.]

The experience of battles for Stalingrad has shown that it is very often necessary to place command posts in the city, in streets, among units engaged in combat. In such cases protection and defense of command posts should be organized with the greatest care. The principal requirement is that no enemy tanks or small groups armed with automatic weapons should be permitted to penetrate the vicinity of the command post. The command post should be, whenever possible, established in places not easily accessible to tanks, places with natural antitank obstacles. Stubborn street battles, in which our troops in Stalingrad are engaged, have already provided a certain practice in the selection, protection and defense of command posts.

Units which were engaged in direct defense of a command post took up defensive positions in accordance with a determined plan. An alleyway was protected from the direction of several blocks. In some houses two or three men armed with automatic rifles were placed. It was their task not to permit infiltration by enemy groups armed with automatic weapons. Antitank-rifle crews took up positions on street crossings in places where German tanks might appear.

To illustrate: At noon the Germans undertook a strong attack against the neighboring unit. Having broken the defense, ten tanks appeared on the division's left flank, threatening the command post. There arose an exceptionally difficult situation, but at a street crossing the tanks were met by armor-piercing fire. One antitank rifle crew stopped the leading enemy tank with the first round and set it on fire with the second. The same fate met the second and third tanks. The remaining enemy tanks turned their vehicles back. The personnel of the headquarters platoon took advantage of this situation and disabled two more enemy tanks with incendiary bottles. The well conceived plan of defense of the command post enabled the staff to work in safety and assured the uninterrupted nature of command.

Another example: The CP of a certain unit was situated in a viaduct passing under a highway. This place was not selected by accident, for the highway ran into vacant space and has not yet been fired on by artillery or bombed from the air. To provide secure protection of headquarters, a chain of OP's was organized. These were placed in demolished buildings, shell and bomb holes—in those directions where enemy tanks and men armed with automatic weapons were certain to appear.

At night the observers noticed that the enemy in numbers up to a company

in strength and armed with automatic weapons was moving in small groups of ten to fifteen men, using the ruins of buildings and irregularities of the ground. Their actions were supported by intensive artillery and mortar fire. At this time not more than fifteen men from the headquarters platoon were at the CP, and naturally it was very difficult to repel the enemy attack with such weak forces. Consequently, staff officers were called upon to take up defense.

The enemy did not cease fire, continuing to control the exit from the viaduct. However, the clouds of dust and smoke raised by shell bursts helped our men to place mines at the dangerous spot without suffering any losses. Estimating the situation, the Chief of Staff reached the conclusion that he would be able to withstand enemy pressure even with small forces and inflict losses on the enemy. A group of officers was divided into two groups. The first group, commanded by a captain, was to attack the Germans from the rear; and the second group, led by a junior lieutenant, was to attack on the right flank. A third group was to hold the enemy frontal attack.

The plan of the Chief of Staff had fully justified itself. At a pre-arranged signal the first group of officers proceeded to a neighboring street, reached an enemy mortar battery without being seen and destroyed the latter. German automatic-weapons operators, dazed by such boldness, began to retreat in disorder. At the same time the noise of automatic-weapons fire and hand-grenade explosions was heard on the right flank. The

Germans were thrown into confusion and fearing encirclement ran for the narrow defile between building ruins. Here they were met by the fire of observers who were protecting approaches to the CP. In a short engagement heavy losses were inflicted on the Germans.

When protecting a CP in a city it is very often necessary to use small caliber artillery in order to repulse a tank attack. This is caused by the fact that the Germans send into the streets large masses of tanks which are difficult to combat by antitank rifle fire alone. Very recently twenty-two German tanks moved into attack against the CP of a certain division. The tanks were moving in two groups. The first group, consisting of heavy medium tanks, was moving frontally, directly endangering the CP. The second group was by-passing it. The first group of tanks was engaged by a platoon of 45-mm guns. Point blank fire disabled five tanks, and these vehicles blocked the road for the remaining ones and in this way deprived the tanks of the second echelon of freedom of maneuver. Antitank riflemen and personnel of the headquarters platoon took care of the second group of tanks. In this manner the enemy tank attack was repulsed by the close cooperation of artillery with antitank rifles.

What, then, are the general deductions which can be made? It serves a useful purpose to make up special patrols from the headquarters platoon personnel whose mission will be to defend the CP at its approaches. In addition to this, the fire system must be organized so as to control not only the streets but also the individual blocks. In our opinion it is necessary to have a reserve of antitank elements. Besides the main CP it is necessary to have in reserve a series of CP's. All this will insure invulnerability of the CP and its uninterrupted activity.

Night Pursuit

[Translated at the Command and General Staff School, Fort Leavenworth, Kansas, from a German article in *Militär-Wochenblatt* 18 September 1942.]

A resolute commander will not hesitate to use the night for attack if this is necessary for the completion of a victory or for taking advantage of one for the purpose of gaining possession of important points of departure or holding the adversary where he is.

From Truppenführung (Troop Leadership).

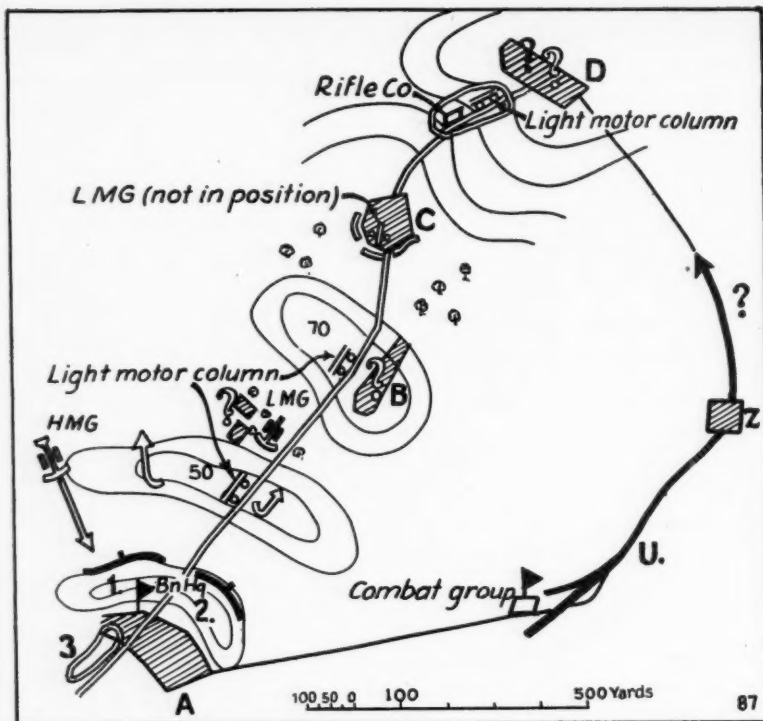
Situation: Reinforced 1st Battalion, in action since 23 October, has, on the evening of 27 October, taken village "A" and the hill to the north of it, fighting an enemy of the strength of one company, and in compliance with regimental orders, is temporarily on the defensive.

On being attacked by the 1st Battalion, the enemy has withdrawn along the highway to the north and northeast. One machine gun and one heavy trench mortar are still firing on Hill No. 50; one light gun is firing on the 1st Company out of the region to the west of Hill No. 50.

During the evening hours, air reconnaissance has observed motor vehicles assembled in "D"; there appear to be tanks, also.

Heavy Weapons: One platoon of heavy infantry guns and one platoon of light AT cannon are attached to the 1st Battalion.

Weather: 37 degrees Fahrenheit; deep mud, poor visibility.



SKETCH No. 1.

Condition of Men: Without sufficient heat for three days; clothing soaked through; extremely exhausted.

Ammunition: One-third of original allotment still remaining.

After a period of thorough training, both of the individual and of the formation, the men must also be trained in night movements and combat in larger formations such as a reinforced battalion. An important point in connection with such exercises is the instilling of confidence in commanders in this type of combat by frequent practice of night exercises, in order that they may be able to forestall panic on the part of the troops if occasion arises.

The action described here is the very kind which will illustrate the characteristic phases of night combat. It may be best employed as a troop command exercise at the close of the formation exercises. It is not suited for a combat fire exercise. The proper representation of the enemy will be difficult in any case.

At about 5:30 PM, the regimental commander appears at the battalion command post and gives the following brief order: "Enemy withdrawing along highway toward 'D.' No detail known. Combat group under U. is pursuing the enemy toward 'D.' and, according to my calculations has now, at 6:00 PM, about reached 'Z.' Reinforced 1st Battalion immediately sets out in frontally directed pursuit and reaches 'D.' advancing on both sides of the highway. Two tanks are being brought to the north entrance of 'A.' I, myself, will at first be stationed in village 'A.'"

The following by the participating commanders: Deliberations; repetition of battalion commander's orders; description of battalion staff organization.

It is not known whether the enemy has continued to withdraw beyond Hill No. 50 or has stopped somewhere along the highway, for instance, in the vicinity of Hill No. 70 and outside of "C." It is uncertain at what rate the combat group

under U. is advancing. No connection exists with it. It is important to keep hotly after the enemy as long as he is in the notion of attacking. The highway is suitable for employment as a guide in the advance. It is chosen, therefore, to mark the middle line of the battalion.

At about 7:15 PM the battalion commander goes to the hill north of "A." He is followed in file by the 3rd Company, one heavy machine-gun platoon and one heavy trench mortar group. The heavy infantry gun platoon and the AT platoon are still stationed on the north edge of "A." The commander is with the battalion. The commanders of the 1st and 2nd Companies are summoned by messenger. The companies, themselves, with their subordinated heavy weapons, assemble in file to the right and left of the highway. A group from each of the two companies (the 1st and 2nd) is sent out 200 yards in advance as security.

Shells are still dropping here and there on the western part of the hill north of "A." The sound of motors can be heard to the northeast. It has now become quite dark and a light rain is beginning to fall.

The men turn in for the night right where they are. On account of the situation of the enemy and condition of the men, most of the commanders are very dubious as to the wisdom of this night operation. The commander of the three tanks which have arrived in the meantime, reports that he is unable to operate effectively at night, and proposes that they remain in "A" and head toward "D" at dawn, in the wake of the battalion. All these doubts must first be dispelled by the definite decision and firm orders of the battalion commander.

The form in which the advance is made is shown in sketch No. 2. The dispositions are made during the halt. The troops cannot start till every commander has reported ready.

What arrangements are made with the heavy weapons in case of a possible encounter with the enemy?

What missions are assigned to the groups preceding the 1st and 2d Companies?

The battalion begins the march. It is 7:30 PM. When the rifle troops see and hear the column of heavy weapons coming along behind them with roaring motors, their morale is again improved.

Half way over Hill No. 50, there is a short halt. Every one runs up to the highway to see what it is all about. An enemy tank is standing there with its motor still running but its crew is nowhere to be seen. After the men have been cleared off the highway the troops continue their advance. Suddenly a few rifle shots are heard to the left of the highway. The advance group belonging to the 1st Company is firing tracer bullets in the direction of a bush beside the highway. At the same time one of our machine guns begins firing. Shortly afterward the detonation of hand grenades is heard. An enemy gun is taken, its crew shot down.

The 1st Company receives the order to pass by to the left of the group of farm buildings and not to search them.

After a few hundred yards a halt is made, order reestablished and the disposition, which has just come to an end, reported by each of the commanders at the start. At the same time the commanders make the suggestion that the men now be given at least an hour's rest, since the march over the soft, wet fields with loose equipment has been extremely fatiguing.

"Weariness on the part of the men must never be used as an excuse for abandoning pursuit. The commander is justified in demanding what appears impossible. We must be bold and reckless. Every man must give to the limit."—*Truppenführung*.

Weariness and with dragging steps, the battalion starts out again. Almost immediately afterward, a few rifle shots are heard in the area occupied by the 2d Company. The advance continues uninterrupted. Time and again the commanders are forced to give their attention to the disposition to see that it is maintained as originally commanded. Otherwise, the battalion commanders would not know where the various parts were.

Suddenly, a few hundred yards ahead, a bright jet of fire is seen. Then the detonations and crackling of exploding infantry ammunition is heard. The enemy has set fire to an ammunition truck.

The company commander of the 2d Company, in the light of the flames, sees several groups dash across the highway in the direction of village "B." He is now, with his company, only 200 yards from the village. (Decision of the commander of the 2d Company.)

In compliance with orders from the battalion, the 2d Company is brought, in file, to the highway and, as it continues to advance, passes to the left of village "B." A night fight in the village, with heavy losses and doubtful results, is thereby avoided.

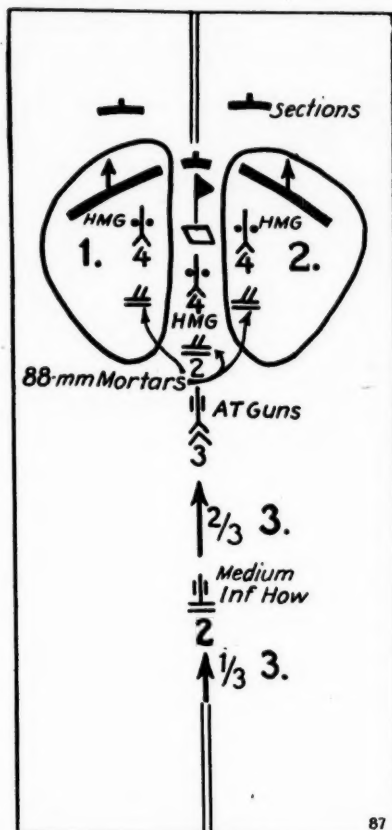
As the first houses of "C" begin to come into sight, the two groups proceeding ahead of the 1st and 2d Companies, begin to receive machine-gun and rifle fire along the highway.

(Deliberations of the group leaders and their decisions.)

It is necessary for the two detachments to deceive the enemy with respect to the real strength of the attacking force, by firing on him from as many positions as possible. It is, therefore, de-

sirable that the detachments be provided with as large a number of machine pistols, automatic rifles and machine guns as possible.

The young soldiers of the 1st and 2d Companies estimate the enemy's strength at at least a company. The older heads, however, know that firing at night always sounds more dangerous than it is in reality.



SKETCH No. 2.

A halt is again made as a result of this contact with the enemy. The commanders of the heavy weapons come up ahead with the battalion commander; the commander of the 3rd Company had been with him all the time.

There is also an enemy trench mortar firing along the highway now. There are, however, no casualties. The two detachments cease their firing. Far in the rear of village "C," a white flare rises.

What combat plan is made by the battalion commander?

Although unable to see anything, the tanks fire along the highway in the direction of the village. The machine-gun platoon which is following them fires in the same direction in single shots, as if the guns were rifles. The AT platoon

also fires. Impressed by this fire, the enemy ceases fire immediately. The 1st and 2d Companies take advantage of this to go around on the right and left of village "C," joining forces again on the highway north of "C." The leaders of the two advance detachments, under the fire of the heavy weapons, have continued to advance on their own initiative. They fire a white light signal, then enter the village. The enemy, with a strength of about thirty men, tries to escape on the north side of the village but part of his forces are brought down by the fire of our troops, part of them taken prisoner by the 1st and 2d Companies. So far we have had no casualties. Two machine guns and the trench mortar have fallen into the hands of the battalion.

The sound of motors, coming from the direction of "D," increases in intensity. More flare signals rise in the air. Flare signals are also seen to the east. Where is the combat unit under U.? North of "C" a halt is made, the disposition corrected and a new start made. Morale is good; fatigue is soon forgotten.

The battalion is descending the hill to the north of "C." After a few hundred yards a flare signal rises from very close at hand. A few paces ahead the 1st and 2d Companies see a confusion of vehicles—apparently including guns and tanks—at the bottom of the slope. A moment of quiet follows. What can all this be? Russian voices are then heard and a group of men appears.

Company commanders shout, "Forward march! Double quick time!" In between shouts are heard, "Everybody on straight ahead!" The men fight their way ahead with hand grenades, spades, and pistols. A truck and a tank are standing together. Their crews are shot down as they attempt to crawl under them. Great confusion is brought about in the order of the battalion by the close and wild fighting, but order is a matter of minor importance, just now. All commanders take those men and weapons on ahead that happen to be near them. In the light of the flares new activity is detected in "D." It is impossible to move the heavy weapons ahead any farther as the highway is blocked by enemy columns. Hence, the rifle companies take up the fire all alone. After a short time, however, it is learned that the supposed enemy is the combat group under U. which had reached "D" a short time before.

A little before the 1st and 2d Companies got into action with the enemy column, the 3rd Company, which was back of them, had seized without firing a shot a horse-drawn enemy ammunition train which, all unsuspectingly, had turned onto the highway from a side road and most of whose drivers were asleep.

It is 3:00 A.M. The battalion's mission has been fulfilled. Casualties: one man slightly wounded by our own fire.

The doctrines involved are evident from the description of the engagements.

their main battle position. Their mission is as follows: to permit enemy tanks to pass by and then to open flanking fire against them. Some of the guns are placed on the forward edge in well concealed positions. The majority of the guns, however, are distributed behind cover, and their crews are in readiness to open fire from previously prepared positions at the given moment.

In the defensive position, other guns are distributed in depth. These guns remain silent during the preliminary part of the engagement but are kept in reserve for the support of counterattacking groups and second echelons when combat in depth develops. In centers of resistance antitank guns are included in the system of all-around defense and are placed in permanent positions covering sectors exposed to tank attacks.

All of this means that before the tank attack, our commanders must subject the German tank defense to careful reconnaissance in order to be prepared to silence enemy resistance by the fire of our tanks. Our flanks should be protected with special care.

Having experienced the power of our tanks, the Germans are very careful in selecting firing positions for their antitank guns. When the firing position does not offer a 360° field of fire, then those sectors which are exposed to tank attacks are mined by mobile mines; and these are maneuvered by one of the members of the gun crew.

The method of employment of mobile mines in antitank defense is well known. The German technique of moving these mines in defending an antitank gun is as follows. In a radius of 35 to 40 yards from the gun, stakes (1.5 to 2.5 inches thick) are driven into the ground in a semicircle. The upper part of the stake has a clamp for barbed wire or field cable. In a concealment near the antitank gun one member of its crew also has a stake with as many clamps as there are mines.

To the handle of the antitank mine, which is placed between two stakes, a wire is attached, this wire having been previously stretched through clamps in the stakes. A branch is attached to the mine to facilitate observation. When a tank appears in this sector, the gun crew member thus concealed makes an effort to pull the mine under the tank tracks (the safety pin has been removed from the mine previously).

German artillery, engaged in the support of infantry, opens curtain fire against the tanks from a distance of 2 to 2.5 miles.

As experience shows, such fire is not always dangerous to tanks. It is rather calculated to produce a moral effect. Antitank guns fire in accordance with a previously prepared plan based on the particular situation of each gun or each group of guns. However, in no way does this increase the accuracy of the fire. In addition to this, such "planning" is frequently violated as soon as our tanks show effect against the enemy fire system. Antitank rifles at times also fire from great distances, but most frequently they begin to fire when the tanks come up more closely. German instructions for antitank defense require that if the tank is moving directly into the rifle, the center of aim should be the center of the turret; if the tank is by-passing, the side wall of the tank should be aimed at. Specially designated machine guns and rifles fire armor piercing bullets at the observation slits, loop-holes and entrance hatches, also against infantry which is following behind the tanks. Bundles of hand gre-

How German Antitank Defense is Organized

[Translated at the Command and General Staff School, Fort Leavenworth, Kansas, from a Russian article in *Krasnaya Zvezda* 30 May 1942.]

The Germans organize antitank defense by utilizing all weapons at hand. It is echeloned in depth. They particularly employ for this purpose their regimental and division guns and all the

guns of their army antiaircraft artillery.

The distribution of guns used for antitank defense varies greatly. Sometimes the Germans erect "islands" of antitank guns in front of the forward edges of

nades are used. These are thrown under the tanks or tossed on the entrance hatch. Special mortars, machine guns and other weapons operate by hand fire on the infantry which is following the tanks, for the purpose of cutting it off from the latter.

But such a defense is not insurmountable for our tanks, and because of this the Germans strengthen it by mine fields and other obstacles, which are erected around each strong point and which are covered by fire of the strong point. The terrain in front of the strong point (300 to 400 yards wide) is carefully cleared of trees, bushes, buildings or other objects which could serve as cover for the attackers.

For the protection of infantry against tanks the Germans make extensive use of "firing cells," without an earth cover. Each "cell" is camouflaged and usually holds two men. Its dimensions: length—about 1.5 yards; width—about a half yard; depth—1.5 to 1.7 yards (approximate). It is only with difficulty that such a "cell" may be observed from a tank.

What the Experience of One Attack Teaches

[Translated at the Command and General Staff School, Fort Leavenworth, Kansas, from a Russian article in *Krasnaya Zvezda* 28 June 1942.]

One of our units had been assigned the mission of capturing a populated point and a certain hill, thereby helping the neighboring units engaged in offensive action, to encircle and destroy enemy forces. It must be noted that the Germans attached particularly great importance to this populated point. Its loss would deprive the main German force of lines of communication and evacuation. Consequently, this enemy force could be cut off and encircled. This is the reason why the Germans constructed fairly strong defensive fortifications here. The enemy had a number of fortifications of the field type with several log and earth dugouts.

The first mistake committed by the commander of our unit was in his failure to carry out sufficiently detailed reconnaissance. Despite the fact that the terrain was new to this unit, its commander limited his information to that which was communicated to him by units which had previously occupied the position. There was not carried out even a careful reconnaissance of the terrain in the vicinity of the forthcoming offensive action. Thus, when making his decision to attack, the commander did not have complete and accurate information on the nature of the enemy's defense and on his main forces.

This flagrant omission brought on a number of other errors. The unit commander received a verbal order to proceed to another sector four days before the attack. At the same time he was given preliminary instructions. Three days before the attack he was given the combat order. Therefore, there was fully sufficient time for preparation, particularly if it is taken into account that before this the troops had several days' rest. The absence of sufficient reconnaissance data caused the commander to take too much time for making his decision. Time was passing and the unit was not yet starting to prepare for the forthcoming attack. Finally the decision was made but soon the commander developed some doubts and made a new decision.

During the winter the Germans placed great emphasis on the employment of small groups of tank destroyers (3 to 5 men). As our tanks were forced to come to a stop, such a group attempted to set fire to them or to blow them up with antitank mines.

Action designed to overcome the German antitank defense requires in every case the most careful reconnaissance, good artillery and engineer preparation of the attack, and cooperation between tanks and infantry prepared in detail.

Our Soviet tanks possess great breakthrough qualities, mobility, fire power, and exceptional visibility on the battlefield. When skillfully used in conjunction with other arms they are able—as combat experience shows—to crush any German defense. It is of course a foregone conclusion that the enemy will employ new methods of antitank defense, depending upon the situation. The careful study of available facts will help our commanders to discover these new methods and to find the most effective measures of counteracting them.

In line with the first decision the unit re-grouped. Its various parts were designated for action against corresponding objectives of the attack. The artillery also was distributed in accordance with the decision adopted. But one day later the second decision was made. The second order reached the various elements of the unit only on the day of the attack, several hours before action. Thus, although there was still more than sufficient time for preparation, the various parts of the units were late in properly organizing cooperation with tanks and artillery. It should be added that the commander did not even make terrain reconnaissance, limiting himself to issuing the order.

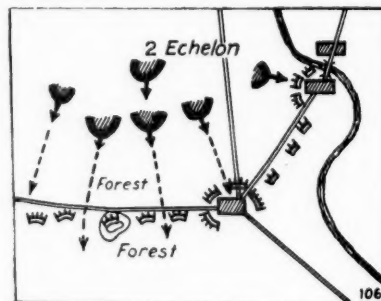
The commander's second decision did not have sufficient foundation. It did not assure success in the execution of the mission at hand. Instead of a concentric blow the commander decided to act on divergent lines (see sketch). Such a battle formation, lacking in corresponding groupings on the flanks and in the rear,

could not have produced the anticipated effect. Combat practice shows that frontal attacks should be undertaken only as exceptions. In this particular situation it would have been advisable to form the main grouping on the right flank.

After artillery fire on the enemy positions our infantry attacked. Tanks carrying small infantry parties departed thirty minutes earlier; but since they were not supported by the main infantry force, the enemy threw them back from the village. Following this the infantry, which was lagging behind the tanks, was cut off from the latter by organized enemy fire. From all this it is clear that our artillery fire was not effective. Again, this was caused by the very long time which the commander took to make his decision, while the artillery did not receive sufficient time for reconnaissance and for the organization of outpost OP's. The artillery did not have a sketch of targets and conducted little observed fire against the area. As always happens in such unorganized actions, control was soon out of order and the commander made no use of radio to restore it.

By committing his second echelon in action the commander did not improve the situation but, rather, made it worse. The premature commitment of the second echelon, which, in addition, was distributed among the separate parts of the unit, was, perhaps, the worst of the errors. The various parts of the unit became confused in the forest. Under heavy enemy fire and a subsequent counterattack they retired to their initial positions.

Summing up, what were the general reasons of the attack's failure? They were: poor reconnaissance, slowness in making decisions caused by the absence of reconnaissance data, faulty organization for combat, and a loss of control.



The Military Spirit of Japan

[From an article by the Chief Assistant of the Japanese Military Attaché in Berlin in the German magazine *Signal* Second January Number 1943.]

Japan's brilliant successes are built up on the equipment, training, and fighting spirit of the troops. The idea of an air torpedo, for example, was first conceived by the Italian Fleet; it was taken over by the British Fleet and developed. The Japanese naval air arm worked on the problem for more than fifty years, sacrificing several hundred lives. After the battle of Java a British military critic expressed his surprise that the Japanese fleet had fought well during night engagements too. Here I should like to point out that the Japanese fleet, especially the smaller units, is trained in peacetime principally for night fighting, also at the cost of many lives. The Japanese land forces, too, are prepared in peacetime for

landing operations and night encounters. The four years of war in China have so hardened them that they are at home on every type of terrain, and even the jungles of Malaya were no serious obstacle. Apart from this thorough training, every man is animated by an unparalleled martial spirit; indeed, it is this military spirit that makes such training possible. What is the essence of Japanese martial spirit? It is the *chugi*, for which the Western term "loyalty" is a poor and inadequate equivalent. I should like to explain it as "selfless devotion to the Emperor."

If I fight at sea, my body will be embalmed by the salt waves. If I

fight in the mountains my body will be changed into moss; but this is of no account, only one thing matters; to die a hero's death for the Emperor.

In these words a warrior of olden times glorified *chugi*, and still today it is looked upon as the symbolic expression of the Japanese martial spirit.

The moment the Japanese is mobilized, all his private life loses its significance for him. This surrender of private interests has nothing whatever in common with "duty" or "sacrifice," but each individual soldier feels it as the sacred purpose of his life to identify himself with the personality of the nation and so to live for ever. That is why he does not shrink from falling in action and why we can speak with perfect truth of the "joy of dying" of the Japanese. His last words are not for mother, wife or children, but with the cry "Hurrah for the Emperor!" he breathes out his life on the battlefield.

The same "voluntary joy of dying" animates every Japanese soldier. For especially difficult enterprises on land or on sea from which return is scarcely possible, the so-called *Kessitai* (troops resigned to death) are enlisted; in such cases the number of applicants always exceeds by far the number required so that the choice is extremely difficult.

Bravery can be ascribed to a variety of motives. It can be the outcome of a sense of duty or the fear of being taken prisoner and shot, and there is the animal bravery of primitive man. In contrast I should like to call the bravery of the Japanese soldier "bravery inspired by the joy of dying."

What is the source of this "joy of dying"? To understand it we must return to the very source of the Japanese spirit the individual character of which is, in my opinion, the unique conception of the ego.

The Japanese says: I do not exist as an isolated ego but as a member of my family. I am the son of my parents, the brother of my brothers, the father of my children, and the husband of my wife. My birth was the working of fate, spatially I belong to my clan and temporally to my family. In Japan, the whole nation is literally one large family. This is neither an exaggeration nor a mere figure of speech but an incontestable fact.

By far the greater part of the Japanese nation today is descended directly from the imperial family and its clan. No other great nation in the world is racially so pure and of such simple composition as the Japanese. In addition the Imperial family has been the center of the great Japanese nation during the centuries. From the fact that the dynasty has been on the throne for 3,000 years, it is apparent that during this period there has been no revolution. How was and is this possible? Because the Japanese state system is based on the family system and because each Emperor rules his people with a father's heart. This "ruling with a father's heart" is called *kodo* (the way of the Emperor). As long as the Emperor rules in accordance with the principles of *kodo* it is impossible for a revolution to take place because revolutions can only break out where a state system or the rulers of a state suppress the natural development of a people.

Similarly the religion of the Japanese, *shindo*, is something entirely individual and unique. This is not to be compared with *Shintoism* which besides Buddhism, Christianity, etc., is one of the religions recognized by the state, but the state

ethos which animated the people of old Japan before the introduction of Buddhism and which even today sometimes moves the Japanese to fanaticism. The essence of *shindo* is ancestor worship and the striving of every individual to prove himself worthy of these ancestors by his personal mode of life. *Shindo* is a temporal religion. That is why the Japanese has a very temporal conception of immortality.

Christianity makes a distinction between the duality of soul and body and preaches that after the death of the body the soul lives on eternally. Japanese *shindo* on the other hand teaches that the soul remains immortal only as long as the race persists.

From this *shindo* dogma is derived the belief in the divinity of the Emperor, for, as the conception of God embraces the forefathers, it is a matter of course that the Goddess of the Sun, the ancestress of all forefathers, is venerated as the God of Gods by the whole nation.

We can easily understand that the ruling Emperor is revered as a divine person, for he is the direct descendant of the Goddess of the Sun and simultaneously the head of the Japanese clan.

The clan system and *shindo* are two fundamentals of Japanese thought. In the course of its history Japan has absorbed and assimilated various foreign elements such as Buddhism, Confucianism, and Christianity. A few of the precepts they teach have sometimes had undesirable effects. The racial ethos, based on these two fundamental thoughts, however, remained immune to their influence. This racial instinct rooted deep in mother earth is in the blood of every Japanese.

In Europe the Japanese military spirit is very often identified with *bushido*, the spirit of the samurai. The Japanese army is not composed of samurais alone, and the essence of the Japanese military spirit is not to be looked for in the tradition of the *bushido* but in the more ancient racial ethos of the *shindo* which

crystallized in the *chugi*. To sacrifice one's life joyfully for the divine person of the Emperor, and to be absorbed in the great ego of which the Emperor is the symbol is a categorical imperative for the Japanese soldier. That is why difficulties and obstacles do not exist for soldiers animated by such a "joy of dying." Already in peacetime, *chugi* calls for a thorough training during which even food and sleep are forgotten. In wartime, "miracles" are possible; for the Japanese soldier cares little whether he dies 20 years sooner or later.

With the idea of *chugi* the Japanese military spirit combines a pronounced sense of honor. This is the substance of *bushido*. The old samurais preferred voluntary death to the disgrace of being thought cowardly (*harakiri-seppuku*). In Hagakure-Rongo, the *bushido* catechism, we read:

Bushido means death. If you are given the alternative of life or death always choose the latter. Go towards death without faltering. It is immaterial whether people scorn your death as a dog's death (futile death). To do so is to despise "bushido" as only court-flunkies do. Everyone wishes to live as long as possible, thereby thousands of justifications and excuses are brought forward for avoiding death. But it is far better to be scorned for dying a dog's death than to be called a coward.

Such a sense of honor still persists today as the heritage of *bushido* in the Japanese army. The best proof of this is in the fact that Japanese soldiers never allow themselves to be taken prisoners. The Japanese court martial does not punish unavoidable capture, but from the mortal standpoint it is inadmissible.

Every nation has its own military spirit. To understand it we must go back to the original sources of the nation's spirit, for today the masses of the people are the backbone of the vast armed forces.

Police—A New Aspect

[From an article in *Signal* (Germany) October 1942]

In the trenches just outside Leningrad, a sergeant is standing up to his waist in water exchanging shots with a Soviet sniper or aiming his guns at the tanks continually attempting to break through the iron ring around Leningrad.

The German policeman armed with a sub-machine gun and who fights in the front line is a new and unprecedented phenomenon. In 1936, the year of the Olympic Games, this new type of man made his first public appearance. He was a muscular, agile individual in white uniform. His face was clean shaven and only in very rare cases did he wear a narrow moustache.

The particular feature and advantage of policemen of this type was that they did not carry a rubber truncheon as did their colleagues in most other countries. They were seen acting not only as traffic policemen and interpreters but also as Olympic athletes who won many medals. They made their first appearance as soldiers in this war, front line fighters who can be used for such a wide variety of

tasks that it becomes almost boring to enumerate all the things they can do. They not only attack like any other soldier, but they are specialists in fighting oil conflagrations and mopping up guerrillas. They deal effectively with partisans and parachutists, guard roads leading to the front, build roads and bridges, get damaged electricity works going again, prevent works of art from being destroyed, render dud shells harmless, and teach the population of the conquered territories to work again and to organize self-help to make good the damage suffered in warfare. One day they are at home, the next day they are at the front and consider it just as natural to exchange their white coats for the field-grey tunic as a normal citizen does to change his suit for the evening. Byron's proud words: "Do not ask me what I can do, ask me rather what I cannot do!" can be applied apart from the arrogance, to the German policeman. Many police officers and men have passed from the ranks of the German police in-

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to the German Army. One hundred and twenty-two generals were formerly policemen and 146 of the men decorated with the Knight's Cross—of whom 8 have also been awarded the Oak Leaves to the Knight's Cross—have been produced by the police.

The German policeman is fundamentally different from all the others in the world with the possible exception of the Italian Carabinieri. He is not a civil servant in the old sense but a soldier and, moreover, a political soldier. He is a man bearing arms. It is only his special task which distinguishes him from his comrades in the German Army. This task extends to civilian life and peacetime. But before an account is given of these things, an interpolation is necessary—the police force of which we are here speaking is that which is responsible for law and order.

Foreign observers of German life easily fall into the mistake of regarding the whole of the German Police Force as the SS (*Schutzstaffel*) organization. The truth is clearly demonstrated by the title of the Reich Leader of the SS who at the same time holds the position of Chief of the German Police. The Police and the SS belong together as a matter of course; they form the "Schutzstaffel Korps." The SS, originally an abbreviation for "Schutzstaffel" which means "bodyguard," is a purely political unit established for Adolf Hitler's personal use. It would lead too far to give an account here of how the duties of the SS extended in proportion to the increasing importance of Adolf Hitler's movement. To understand its organization it will suffice to say that the fighting SS is a section of the "Schutzstaffel" placed at the disposal of the Armed Forces for active services as one of the most modern fighting units.

The reorganization of the police force was entrusted to the Reich Führer of the SS. The police force is also divided into two parts, the Order Police and the Security Police. The former wears the green tunic, the latter usually the field-grey uniform of the SS. It is the task of the Security Police to combat crime of every kind. Attached to it are the Criminal Police, the Secret State Police, and the Security Service. Although at the outbreak of war, the last reforms were still being carried out in the Police Force, its reorganization may be regarded in the main as having been completed. No further changes will take place, particularly with regard to the character of the Order Police. The Chief of the Order Police is SS Colonel-Group-leader, Colonel-General Daluge, also Deputy Reich Protector in Prague.

The uniform of the Order Police is of a greenish field-grey color with brown cuffs and collars. When on traffic duty in the towns, these policemen wear a white coat and a flat cap. At other times they wear the shako, the short rifleman's helmet, and at the front, of course, the steel helmet. Rank is shown in exactly the same way as in the Army, except that a General of the Police Force does not have a red lining in his coat and red stripes, but green lining and green stripes. In contrast to the Army, the men serving in the Order Police immediately look forward to a post in their organization. They are soon awarded a stripe, that is to say they become N.C.O.'s. This is not merely a show rank. The policeman has to acquire the military knowledge of an N.C.O. His training as a

soldier and policeman is consequently particularly strict and intensive. In order to insure that this will be completed, the policeman has to join up for life. His military training runs parallel to the other which, it can only be said, aims to

a private organization of technically trained men whose task it was to prevent and repair damage arising from acts of sabotage and strikes. It is today being employed at the front. The fact that, for example, the Voluntary Fire Brigades



A GERMAN POLICEMAN IN A FIRING POSITION ON THE EASTERN FRONT.

complete all-round instruction of the policeman. The ideal of the German Order Police is a mixture of soldier, lawyer, and a man whose knowledge extends to as many spheres as possible.

The Order Police include the Protection Police of the towns, the gendarmes in country district, the Fire Protection Police, the Voluntary Fire Police, and the Technical Emergency Service. The Technical Emergency Service was formerly

and the Technical Emergency Service today form part of the Order Police, reveals the modern character of the German Police. It is nothing more nor less than the character of self-help—police service is not service for the benefit of authority but for the benefit of the people.

The special character of this organization must be recognized. Its iron-center is the unit of fighting men.

Military Operations in the Desert

[An article which appeared in the Czechoslovak publication *Vojensky Obzor* (London) February 1942. Translated by the Honorable Dr. J. Gardavsky, Consul of the Czechoslovak Republic, Cleveland, Ohio.]

Today every European army can fight in the colonies. The better we know the special character of other battlefields, the better we shall be prepared to fulfill our task on them. I am describing the battlefield in North Africa from my own personal experience with it in the period between the two World Wars.

The most complicated part of any operation in the desert is its preparation. The operation itself, whether an attack or defense, lasts only a short time and is carried out only by a small part of the armies.

The preparatory tasks of every operation are security, transfers and constructions.

Security takes on a special form on account of the vast spaces. The defense, which knows no contiguous zones but is limited to communications, isolated and limited spaces where only the terrain and troop numbers allow it, demands absolute security of all accesses from different approaches.

Although security is a constant vital task of all units, it is reinforced by special units, mostly native. They are motorized, mobile or semi-mobile (on horse, mules, camels). They move between pivot points of the defense (forts) and their constant mission is to maintain communications between them.

Transfer of matériel and men is one of the most difficult of the preparatory and auxiliary tasks of every operation. In a region where, with the exception of food, no provision can be expected from

local sources, where even water often has to be hauled great distances, transportation grows to such dimensions that it becomes the alpha and omega of colonial fighting.

Difficulties of transporting matériel, mainly food and fuel, are the main reason for the impossibility of concentrating armies hundreds of thousands of men strong to which we have become accustomed in Europe. Transportation of men and matériel by air can ease but not solve this problem.

The slightest neglect or oversight in transportation results in a stoppage of the operations or in a slackening of defense and can in a short time even nullify hard won advantages.

Supplying the units is linked with the fighting. Transportation units are accompanied by security forces, mainly armored cars and motorized infantry, while communications are guarded by native troops in their entire length.

Technical work is almost an everyday routine of the colonial soldier. All that has been accomplished in the colonies is due exclusively to the efforts of the soldiers. They build forts and small fortified points, quarry stones, make bricks, construct roads between pivot points, regulate rivers and creeks, fix fords, construct supply bases, airfields, hangars, etc.

Terrain, in which the man is forced to live, usually is a desert where the soldier brings civilization as a pioneer. Even special tasks are not carried out

by engineering troops. The soldier works three hundred days a year with pick and shovel, and for only 64 days he wields arms.

Every officer, especially infantry and cavalry officers, is able to solve technical problems that belong properly to the engineering corps. These are construction of wooden, stone or brick buildings, forts, building of roads, fixing of fords for trucks, planning and distribution of work, etc.

The attack usually has three phases:

—infiltration between pivotal points, cutting off communications between them and enveloping the bases protected by them;

—air and artillery preparations; and

—storming by infantry, as far as possible with tank and armored car protection. This last phase usually is a mere occupation of the terrain.

Pivotal points usually are merely covered by observation troops until the bases have been occupied; then comes the mopping up of the region.

The attack is usually carried on along communication lines with the purpose of getting them under control. The empty intermediate terrain is used only for deep enveloping operations.

Defense is also ruled by communications which are the axes of enemy defense. It is either static, if carried on in pivotal points previously constructed such as forts and fortified points which have no roads of retreat, or it is mobile, if carried out by units on lines of communications between pivotal points.

Fortified points, usually manned by units the size of a squad or company, form a net over the entire region in order to command the communications and to protect vital bases. In most cases they are isolated one from the other, cannot support each other by infantry fire and have to rely on themselves.

The field of fire of the fortified point is 360 degrees. It defends itself to the last even if outflanked by the enemy. By its unyielding defense and by its patrol activity in a familiar terrain, it complicates the execution and the sustaining of enemy attack against the bases which it protects.

Tasks, which by their character are different from the European ones, are mostly very complicated. They start usually with the most difficult thing—transportation over great distances. More than anywhere else they stress importance of the principle of breaking down the total task into a series of gradual problems, of foreseeing and securing execution to a considerable depth. As soon as the unit leaves its base, it is completely independent and has to rely upon itself. It cannot expect that even a part of its task will be carried out by another unit, because great distances make this impossible.

Terrain shows great variety and places great demands on the commander and on the unit.

Beside the cultivated regions, which are more or less similar to the European countries in the Mediterranean area, the following types of terrain are found in North Africa:

- sand desert
- mountain plateaus
- barren mountains
- river beds

Sand desert is perhaps the worst terrain for the soldier. On the barren sand plains the unit must rely upon itself completely. It can be compared with a

ship between the ports of two continents. If the other port—the destination—is in the hands of the enemy it must, in case of failure, count on a long way back using only its own resources.

Modern warfare is simplifying the transportation problem connected with supplies or with movement of minor units by airplanes. But this still is only an exception. Almost all movement is on foot or by motorized vehicles.

Sand surface makes all types of movement difficult. It is slow, exhausting and difficult. The sharp differences of night and day temperature requires special resistance and protection.

There are few or no roads as we understand this word. There is only the direction, seldom outlined even by primitive means. Loss of direction for which the unit has no visible orientation can have a catastrophic consequence for the unit.

The monotony of the desert coupled with other hardships affects the units not accustomed to it with a very depressing effect which, if it continues long enough, changes to moral depression.

Desert fighting is often a fight for water. Where there is water, oases have arisen, sometimes without the traditional palms. Desert roads are the lines of communications between them. Near the wells, situated along the roads of commercial or military significance, there usually are forts well stocked with food and munitions. Usually they are capable of holding six months without replenishing supplies. Their disadvantage is that they are situated on the lowest point of the terrain and must therefore be protected by more vulnerable points.

Mountain plateaus, usually disposed in several ranges one above the other, are easily traveled by motorized units if the approaches have been prepared over normal roads. In general they are endless hard plains here and there interrupted by the dry bed of a former river and stream with countless pebbles. There are even fewer wells than in the desert. They can be found only by digging in the dried riverbeds and at great depths.

The resplendent surface strains the eye, provokes mirages and prevents an outlook at greater and shorter distances, depending on the altitude of the eyes of the observer.

High mountains are barren and very craggy. Life has receded into deep valleys through which wind comparatively well built roads. Outside the valleys there are paths accessible only to men and beasts. Vehicles are restricted to main valleys where they can easily be disabled in the deep chasms.

Forts have arisen at the crossing of valleys, and they command their environs only to the nearest turn of the snake-like winding river.

They are situated far from each other and often beyond their fields of visibility because they have been built on the slopes near water. They are vulnerable from higher spots on the slope from where a good view of the fort courtyard can be had. Telephone communication can easily be cut and for this reason it is duplicated by wireless, helioscope, etc.

If there is no well in the fort an access to the river is built through a deep trench which often can be used only at night; for this reason the fort is equipped with big reservoirs of water.

Furthermore, it is necessary eventually to place protective units on both slopes of the valley to keep the communications safe for transportation of supplies.

River valleys are densely populated by natives, who have found livelihood in the vicinity by raising date palms, wheat, corn and mountain cattle.

The more the valley widens and the mountains gradually pass into mountain plateaus and desert, the more the water from the rivers is spread by ditches which usually are a disagreeable obstacle for cavalry and armored units. Numerous palms, clustering in places where the water disappears into the ground in large palm groves, reduce visibility to the utmost and give the army the same advantages and disadvantages as a forest of tall trees.

The little fields on the slopes are situated one above the other and by their stone walls and terraces constitute an obstacle to motorized units.

Bridges are a great exception. If it is necessary to cross a river the road simply ends in a ford. Very often the highway winds its way laboriously through rocks, even under tunnels built by armies only to end in a suitable ford.

In general the terrain is characterized by lack of water, lack of communications, great distances between suitable stopping places.

Dearth of water forces the commander to study the map carefully and to reflect long before he makes his decision. As soon as the unit moves a few kilometers from a well or river, the problem of water becomes one of life. An individual cannot carry much water nor can the unit if it is not specially equipped for it. Smaller units, chiefly native, can solve this problem in a remarkable way by adequate handling of the supplies and by seeking water in places where no white man would so much as suspect its presence. Larger units have to be supplied from tanks with water which is usually warm and bad. The greatest part of it is used by drinking and in the kitchen. To wash one's laundry—and most often to wash oneself—is out of the question.

Where the unit is provided with motor vehicles, these latter take precedence over men. The water, mostly in the upper and middle parts of the rivers, is saturated with calcium and ammonia salts, harmful to men and machines.

Great distances are a contrast to conditions prevailing in Europe. If a unit advances 125 miles into hostile territory in Europe it is an operative success of first magnitude. In Africa such an exploit has not much significance if at the same time it has not secured the capture of some of the scant and important bases.

Lack of water, great distances and sparsity of inhabitants are the reason for dearth of communications. Outside of the sea, which is the most important means, Africa has very few communications. Railroads are few and an asphalt or concrete road is a rarity. Railroads and good highways usually run near the sea where most of the population lives so that they only duplicate sea transportation.

In the interior there are only bad stone or sand roads or there are none at all, and the advancing armies move ahead only with such speed as they are able to produce by building communications themselves, as in the Abyssinian campaign.

Information about the enemy is obtained by the commander through carefully organized intelligence service which is one of the pillars of colonial rule in peace time.

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In war, information is gathered by the air force, native population and reconnaissance troops.

The air force is the main source of information from the mountain plains and sand deserts where nothing escapes the aerial observer's eyes. On the mountain plains, outside of scarce beds of dried out rivers there is no place where even a small unit could hide.

In the sand desert it is perhaps possible to escape the vigilance of a pilot by hiding in dunes, but on the other hand, the footprints of a somewhat larger unit such as a cavalry or motorized detachment, betray their presence.

In mountains and stone deserts reconnaissance by air is more difficult, but as the basis of all operations is the communication system, it concentrates on these axes and is effective particularly in controlling the enemy supply columns.

Natives are not enthusiastic partners of the white man, no matter which side. But it is easy to buy them for reconnaissance work, which they then perform conscientiously.

Natives like to exaggerate their news which makes it imperative to accept them cautiously and to check them thoroughly. The native's service is inexpensive; he himself knows how to value the news and how necessary it is to get it through in time.

Reconnaissance units are made up of natives familiar with the terrain, especially trained and armed, having good striking force and able to work independently outside bases for several weeks. They are either motorized, if they operate on lines of communications, or mounted, if outside the latter. Cavalry units are used on mountain approaches, in palm groves and at the edge of desert regions; cavalry mules have proved valuable in the mountain on account of the sureness of their movements in a difficult terrain, while camels remain for use as the characteristic transport animal of the desert. Of course, even here the motor begins to replace the animal but the vehicle requires special adaptation.

Reconnaissance troops are often charged with the task of forced reconnaissance; in such cases they first penetrate the screen of the defense before they can operate in the depth of enemy formation. They are sent great distances without regard to their number. They carry supplies of food and water for their trip forward and back, although the reconnaissance unit always reckons with local sources. In comparison to reconnaissance units as they are known to us, they are much better equipped with munitions.

Information of the enemy firmly entrenched in forts or bases is obtained easily; that about the enemy in motion, with much more difficulty. Surprise plays an important part and for this reason the covering force always must be arranged according to the rule which applies when the enemy is near.

Situation. Even in peace the colonial armies are in constant hidden or overt war on a small scale. Their task is policing and covering. For this reason the units are small and usually made up of natives or old, experienced white soldiers.

If the territory of the colony becomes a theater of war it is necessary to send new units there either for offensive or defensive operations.

The human material in the colonial army is very varied. The colonial powers use the strife between the different

racings with success in making up the native garrisons.

The commanders of units must know well the national habits of their warriors. The dispositions of the commander of an Arab unit will be entirely different from those of the commander of a Senegalese unit.

The general principles are:

The black race is excellent in attack and in any collective action; in individual exploits the Negroes are childishly trusting and can easily be fooled; they are less resistant to fatigues, to changes of climate and to privation.

The Arabs are unsurpassable in minute work in the terrain, are hard toward themselves and toward the enemy, indefatigable in marching and in mopping up of obstacles; on the other hand they are less good in collective exploits.

The white men are the mainstay of the army.

The variety of human material in colonial armies requires a compact commanding group. It is composed of old experienced officers, splendid noncommissioned officers and men hardened by many years of service.

The isolation of the units requires a hard, independent and energetic commander. His responsibility is enormous, his power almost without limit. The commanders and subordinate men know each other very well. Discipline is an obviously tough necessity which everybody follows. Everybody knows that by himself he could not survive in a waterless terrain.

Climatic conditions are not only different from normal but they differ in the various parts of Africa.

In the coastal regions the climate resembles the one known to summer tourists of the Mediterranean coast. Abyssinia has a subtropical climate divided into rainy and dry seasons. The influence of the sea reaches far. Outside the coast the climate in North Africa is completely continental. There is little rain if any. The day temperature reaches heights which the white man withstands with difficulty and which forces him to reduce his activities to the minimum. At night again in consequence of rapid evaporation of water the temperature goes down to thirty-two degrees F. even in summer; in winter, even lower. This

brings a great difference in temperature during the day and night for which the European usually pays with his health.

In the mountains there is a great difference in temperature between the places in the sun and in the shade even during the day. For this reason white units in the mountains even in summer march in overcoats and with woolen waist covers (belts) which makes them listless and not very mobile.

Rain is rare but when it does occur it is usually heavy. Within a few hours so much water pours down that river beds passable for long periods are turned into rapid canals of water, and the unit overcome in a march by a rain must wait until the water falls off before it can continue.

Snow is a rarity and appears only in high mountain altitudes. Sometimes it stays even in summer, but it is never an obstacle to marching or communications.

Moonlit nights are much brighter than ours and during full moon the visibility due to the absence of vapors is excellent.

The peculiar features of the North African coast are sand storms. If they bring dust or sand they can stop all communications. The sand penetrates any object. It penetrates the clothing, loaves of bread, motors, etc. Although this sand attack lasts only a few minutes, it can stop an unprepared unit for a long time.

Here perhaps more than anywhere else, good morale of the unit and of individuals is able to overcome the worst obstacles which nature or enemy can put into one's path. Good morale depends in the first place on the commander. In the colonies he is not only the responsible leader but also the only man on whom the soldier depends for everything all the time. Only the commander can protect, advise and extricate from the labyrinth of troubles which life in the colonies brings. For this reason the commander in the colonies must not fail at any time. He is in the first place an experienced warrior, physically absolutely resistant and morally strong. He is more of a boy-scout than administrator.

A good commander of a European unit can fail in the colonies; the differences in conditions of fighting are so great that in many problems the experienced European officer becomes a raw recruit. Therefore his training for the possibility of fighting in the colonies must begin during his stay in Europe.

German Defenses in Wooded and Swampy Localities

[From an article in *Krasnaya Zvezda* 4 October 1942. Translated at the Command and General Staff School, Fort Leavenworth, Kansas.]

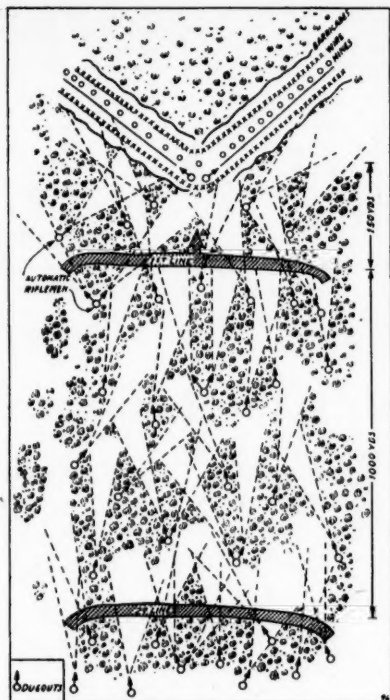
In wooded areas the German defenses conform to sketch No. 1. Near the forward edge lanes are chopped in the form of an obtuse angle. Mines are laid in the center of the cuts; and on either side barbed wire, wooden and other obstacles are constructed. The lanes are covered by enfilade fire. During the day the lanes are patrolled but at night are vacated and the arrival of the Soviet infantry is awaited. About 150 yards behind the cut is a thinly-held line of infantry and about a thousand yards further to the rear is another stronger line of infantry. In the intervals separated by about 50 yards are placed dzots* armed with two

automatic riflemen each having individual acute-angled cuts cleared out for about 150 yards to the right and left front. The density of the dzots increases toward the rear. Each is secured by cross fire from its neighbors. All are connected by communication paths and trenches. In the event of bombardment of the forward defense zone the defenders fall back to the rear.

The weakness found in this type of defense is lack of proper security against flank attacks.

Defense in swampy areas is conducted only on the available dry, wooded islands (see sketch No. 2). An attempt is made to connect each island, but if this is not possible then the islands are built up,

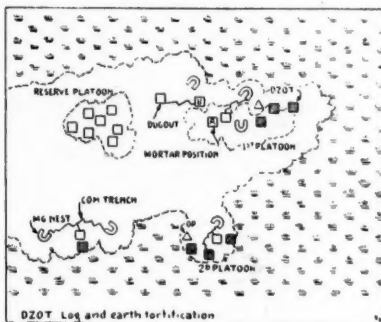
*Earth and log fortifications.



SKETCH No. 1.

and they prepare to carry on an independent defense isolated from the others. In the accompanying sketch two platoons are defending an area of the front about 1,200 to 1,400 yards. The reserve platoon is located about 1,000 or 1,500 yards to the rear. Flank security is maintained by appropriately placed machine guns.

The German machine-gun nests follow a horseshoe pattern, the bend facing the front 3 or 4 yards wide and 4 or 5 yards long. The nest is covered usually with wood and dirt. Massive all-around dzots are rare on the northwest front, the smaller ones with two embrasures being the rule.



SKETCH No. 2.

German Assault Detachments

The flexibility of organization and willingness to form special groups, which is characteristic of the German Army, is illustrated at the lowest end of the scale by the small parties known as *Stosstruppe* (or assault detachments) formed to attack enemy positions.

This term has often been loosely used, even by the Germans themselves, to denote any assaulting troops. The tendency is commented on in a German Army High Command paper upon the lessons of the Western Campaign of 1940, which at the same time names the following essential characteristics of an assault detachment.

- i. It is specially formed for a particular object.
- ii. It is composed of picked men, normally volunteers.
- iii. It is specially equipped for its tasks.
- iv. It is specially trained, and, if possible, rehearsed for the operation.

It will be seen that an assault detachment is necessarily, therefore, something to be employed only in position warfare, however temporary the enemy's defensive positions may be and that although it is principally drawn from the infantry, it will make use of other weapons besides the normal infantry ones and will be reinforced by engineers.

The occasional nature and varying composition of assault detachments does not prevent the regular training of troops for this employment. Indeed the High Command paper above referred to observes that this method of attack was everywhere practiced during the winter 1939/40 in view of the prospective attack on the Maginot Line and the extended field fortifications in Belgium and Holland and that this constant practice caused attacks by assault detachments to be the one

operation which the mass of the German infantry had thoroughly mastered by the spring.

Documents captured in the Western Desert last winter give details of assault detachments which it is believed were to be used against Tobruk. From these it is possible to infer the teaching of German manuals.

The following elements are regularly included:—

- (a) Wire-cutting party (*Hindernissenprengtrupp*, *Stosstrupp*, etc.) of 3-4 engineers, with wire-cutters and bangalore torpedoes.
- (b) Pill-box attacking party (*Scharfensprengtrupp*, *Stosstrupp*, etc.) Of 4 or 8 men. This normally includes 4 engineers with 2 flame throwers: pole and other charges may also be carried. The infantrymen are armed with hand grenades or even with 1 or 2 light machine guns.
- (c) Smoke party (*Nebeltrupp*) of 2-3 men armed with smoke candles and smoke grenades or even with a mortar for firing smoke.
- (d) Infantry support or covering party (*Deckungstrupp*) of varying size. It may be only 2-4 men with 1-2 light machine guns or as many as 17 with light machine guns, heavy machine guns, 3-inch mortar, antitank rifles, or even an antitank gun.

There is also usually:—

- (e) Supply party (*Nachschubtrupp*) of varying size, from the infantry; often 15 men. For their function see below. They may further be used to carry reserve ammunition.

The following can also be included:—

- (f) Bridging party (*Bruckentrupp*) of 3-5 men. More than one party may be taken. These may be engineers, or for simpler tasks infantry, e.g., two parties of 4 infantrymen may carry planks and ladders for crossing an antitank ditch, and at the same time be responsible for carrying away captured material (*Beutetrupp*).
- (g) Mine-searching party (*Funktrupp*) of 2 men with a pack wireless set: this has only been found in one very elaborate detachment. Those taking part are armed partly with rifles, partly with pistols or machine carbines. Ammunition is carried in the jacket pocket, not in pouches. All are armed with hand grenades, which may be carried in a special haversack. Spades and pickaxes are carried by some, and at least one signal pistol; sometimes ground strips as well for ground-to-air communication. The troops wear field service uniform with steel helmet and sometimes respirators, and carry iron rations and water bottles. The remainder of their equipment is brought up by the Supply Party. An assault detachment may total anything from 14 to 40 men, and sometimes as many as four detachments may be sent out together. Detachments are organized under Battalion or Company arrangements, according to the size of the task. Engineers will be provided from the regimental pioneer platoon or from the divisional engineer battalion: always from the latter when flame throwers are used. Close support weapons are allotted as necessary.

In action the first task is a thorough reconnaissance. The assault is planned in great detail and the assault party depends for success on coordination of the various arms supporting it. Once the attack goes in, unified command will be quite impossible. It is therefore necessary that the assault should be so organized as to run itself.

The course of a typical attack on concrete fortifications is as follows: The attack is preceded by a short artillery concentration on the objectives. Then the artillery puts down smoke, under cover of which infantry and their supporting weapons get into position at short range. These supporting weapons will include antitank guns and possibly field guns placed under command of the infantry, as well as heavy machine-guns, mortars, and infantry guns.

When the smoke clears, all weapons open fire on the loopholes allotted to them; and under cover of this fire the infantry and engineers move in to the assault.

The assault on casemates of pill-boxes can be made in several ways; but all depends on the principle that if you are near enough to a casemate or pill-box, as to a tank, you can get inside the angle of fire of its machine guns and be safe. Casemates however will usually be sited so that they are covered by machine-gun fire from their neighbors; and therefore they can only be attacked in this way if either supporting fire keeps the embrasures of neighboring casemates shut or more smoke is put down to isolate the particular fortification to be assaulted. The actual attack on casemates may be

made either with explosives or with flame-throwers.

(a) Infantry can sometimes get close up under the embrasures and push grenades inside. Engineers, who carry more powerful charges, can blow up casemates and attack embrasures which they cannot reach by mounting charges on the ends of poles. These pole charges are a common engineer weapon. The infantry can improvise a similar charge by tying the heads of six stick grenades round a complete central grenade.

(b) Two sizes of flame-throwers are carried by the engineers. The range of both is claimed to be about 30 yards but may in practice be no more than 20 yds. The smaller gives a jet for 10 seconds, the larger for 25 seconds. The larger has to be hauled on a two-wheeled trolley.

A simpler method than either of these has been used to neutralize pill-boxes: namely, to plug the embrasure with a sand-bag, which may embarrass the defenders for a few moments.

How a Convoy Is Guarded

[An article appearing in *Britain* December 1942.]

Let us suppose that twenty or thirty merchantmen are being escorted in convoy on an open ocean route. For most of the voyage they will be out of range of air attack, so the problem is primarily one of anti-submarine protection.

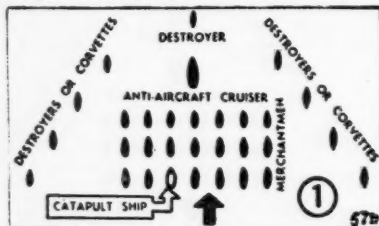
Usually the submarine cannot hope to do more than fire its torpedoes across the line of approaching ships, taking a chance which vessel it actually hits. It has very little hope of an assured hit on one preselected ship in a convoy.

The merchantmen will, therefore, generally be disposed in three lines abreast, with destroyers and corvettes spread out on either side of them, and with perhaps one destroyer ahead and one astern (see Diagram 1).

A glance at the diagram might suggest that the convoy is unprotected from the rear. But in daylight a submarine must attack while submerged, and a submerged shot at the stern of a convoy is a particularly ineffective one.

Remember, too, that the destroyers and corvettes with their Asdic apparatus have been "sweeping" the water ahead and abeam of the convoy as it proceeds, so they should have picked up the submarine as they approached it.

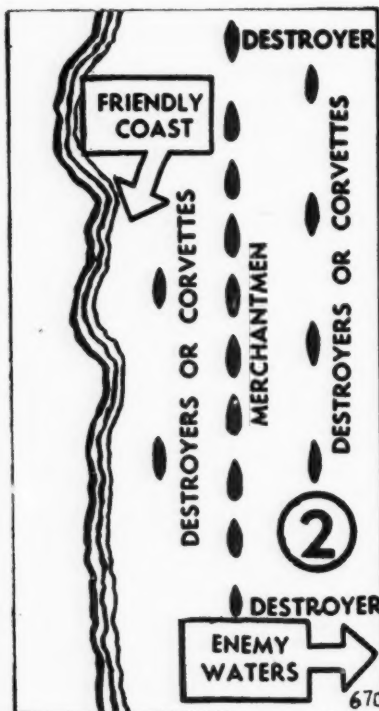
The reason for disposing the convoy in long lines abreast rather than in lines ahead is that this presents the smallest target for torpedoes fired from the side.



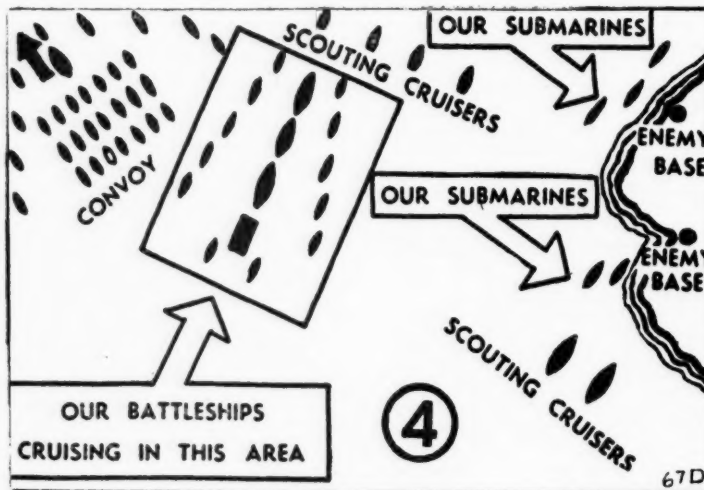
If there is an anti-aircraft cruiser with the convoy it will probably be disposed inside the destroyer screen and a little ahead of the leading merchantmen. From this position it can be sent at will to any part of the convoy. In the event of air attack, destroyers may be closed in, or some of them put in among the merchantmen so as to achieve a greater concentration of fire.

Every five minutes throughout its voyage the convoy will change course on a prearranged zig-zag. All ships alter course at the same moment, so that the course of the whole convoy is being continually deflected, sometimes to starboard and sometimes to port of the mean course.

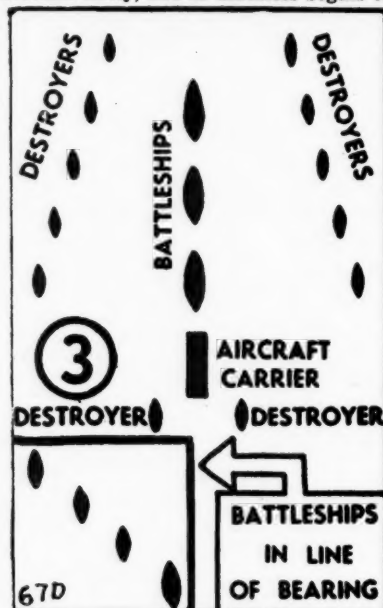
The zig-zags, some of which trace a highly complicated pattern, are designed



to confuse any lurking submarine, to upset its aim or give it a false idea of the convoy's course.



All night, when U-boats can attack on the surface, an approach from astern becomes likely, and as darkness begins to



fall there will be a regrouping of the escorts to cover the now more vulnerable rear.

When the convoy approaches narrower coastal waters an entirely new disposition becomes necessary. Narrow channels, still further restricted by minefields, make it necessary to drop the long lines abreast and to re-form the ships in one or perhaps two lines ahead (see Diagram 2).

The escorts will not be able to fan out so far on either side of the merchantmen, and they will now range up and down outside the line of the convoy. The greater number of the escorts will, of course, be on that side of the line which is nearer to enemy waters.

If a submarine is contacted, whether by day or night, one of more of the destroyers will be detached from the screen to hunt and depth-charge it. The rest of the convoy and its escorts will continue their voyage, turning for the time being, as far as possible away from the U-boat's locality.

When units of the Battle Fleet put to sea they will normally steam in line

ahead with about 400 yards between each battleship. The destroyer screen will be ranged symmetrically on either side of the battleships (see Diagram 3).

Cruisers may either be inside the screen of destroyers or sent ahead to scout and comb a large area of sea.

If there is an aircraft carrier with the force, she will be at the rear of the line, with two destroyers in special attendance on her. From this position she can most easily drop out of station and turn into the wind to fly her aircraft off and on. She is ready to move off at a moment's notice with her escorts and get out of the immediate vicinity, and thus out of range of enemy gunfire, should the Battle Fleet become engaged.

When a Battle Fleet goes into action it will also usually move in line ahead, as this formation enables the maximum number of heavy guns to be brought to

bear on the enemy. An alternative battle formation for heavy ships is echelon, technically known as "line of bearing." This also allows each ship to operate without masking the fire of any of the others.

If a convoy is an extremely important one, cruisers will probably be sent out many miles ahead of the convoy to scout and report enemy movements.

The main covering force of battleships will be far out of sight of the convoy and its escorts.

Our submarines may be brought into play to lie off the enemy bases, or along the route between him and the convoy.

If the cruisers make contact with the enemy, their task will be to draw him on, if possible, into contact with the covering force of battleships.

If it were possible to get a complete view of such an operation, it would look something like this last diagram.

Defensive Operations of a Tank Brigade

[Written by Major Boris Tretyakov, Soviet Army, this article appeared in *The Tank* (England) December 1942.]

At one sector of the Stalingrad front the enemy concentrated strong tank forces supported by motorized infantry and by operating on a narrow front managed to drive a wedge into the Soviet defenses north of village V defended by Soviet infantry. All German attempts to extend this break-through and capture the heights east of V failed. All repeated Nazi assaults were repelled by strong fire and counterattacks of Soviet infantry. Time and again the enemy was forced to withdraw, leaving behind more and more killed and wounded.

Despairing of frontal attacks the Germans apparently decided to employ a tank column to dislodge the Soviet infantry stationed at V by attacking them from the rear and in conjunction with another force operating from the front to encircle and annihilate the Soviet troops.

Upon receipt of this information and supplied with data of movements of the German tank column from the north in the direction of a village situated in rear and to east of village V, the Soviet commander ordered a tank brigade to take up a position on the route of the enemy tank column and safeguard the rear of the Soviet force defending V.

This time, too, the Germans resorted to their favorite method of driving tank wedges through a narrow sector of the front with subsequent operations against the defenders' flanks and rear. Lacking precise data on the direction chosen by the German tank commander, the Soviet tank brigade immediately despatched a reconnoitering detail, consisting of a platoon of light tanks, with instructions to locate the enemy column and determine its strength and direction and its movements.

Meanwhile, the brigade took up defensive positions and deployed in two echelons. The first echelon consisted of the brigade's motorized infantry reinforced by antitank guns, and took up a position north and north-east of the village of S with its right flank extending to villages on its south-eastern outskirts. This enabled our front line positions to be extended beyond the village confines and the motorized infantry controlled all roads leading to S from the north and north-east.

Soviet tanks were stationed in the village proper in a compact group and constituted the second echelon of striking force of the defense.

The task of the first echelon was to immobilize the enemy operations against our front line positions and to force the Germans to deploy and wear down their manpower and destroy material by massed fire. The second echelon was designated for counter-strokes from the depth of the defense positions against any possible break-through or frontal attacks. The battle formation chosen in this given case was dictated both by actual conditions and the nature of the terrain.

Possessing no complete information on enemy movements, the tank-brigade commander couldn't group his forces beforehand in anticipation of a tank attack in any given direction. The Nazi assault could be expected from any direction, and consequently the commander strove to give his defense the maximum flexibility which would enable him to maneuver with his tank column against any enemy flank or rear movements.

In this case the flexibility of the defense was achieved by keeping all tanks in a compact unit. In addition, by placing motorized infantry on the heights north of S, the commander secured good observation of enemy approaches and at the same time covered the village of S. Hence, with tanks stationed in the village, the brigade commander could operate undetected by enemy aircraft or land observers and use his motorized infantry to cover surprise counter-attacks in any direction.

Certainly this formation cannot be recommended as standard. In this case it was dictated by the specific conditions and the terrain. In other cases when the defense commander finds the general situation more clearly defined and has information as to the direction of the enemy thrust, part of his tanks can be utilized to reinforce the first echelon of motorized infantry. The remaining tanks would then form the second echelon and, depending on the situation, could be grouped in a single compact mass if the depth of the defense position permits free maneuver against the enemy flank or in two separate units if the brigade is stretched out along a wide front or if

the terrain is intersected by areas hindering tank maneuver.

If tanks are concentrated in a single group, then as a rule they should be formed with a view to easy access to possible enemy approaches. If tanks are formed in two groups it is advisable that they be echeloned behind the flanks of the motorized infantry, thus increasing the width of the front and providing adequate protection against enemy flank movements.

Forming tanks into two groups has its advantages and shortcomings. *Advantages:* In defending a wide front the two-group formation enables the tanks to counterattack the enemy by a pincer movement without additional deployment. The advancing enemy force can be pinned either by frontal movement, by flank attack executed by motorized infantry, or by attacking the advancing formation from the rear should the enemy penetrate the positions held by motorized infantry. *Disadvantages:* On the other hand this method of grouping tanks weakens the defenses of the second echelon. Consequently, in such cases the tank-brigade commander must provide beforehand for a concentration (should the situation necessitate this) of all tanks; and as a rule must have a small reserve to counter any eventualities in the course of the fighting.

However, in all cases when tanks form the second defense echelon, they must prepare for action along the possible direction of counterattacks and select firing positions in these directions. In open country, tanks should be entrenched and camouflaged. Tanks stationed in an inhabited point or woods can make use of barns, houses, trees, etc., for camouflage purposes.

In the case discussed above, the brigade commander concentrated all his tanks in a single group, thus providing for maneuverability in depth within his position. Subsequent events fully vindicated his decision.

The reconnoitering detail reported a movement two miles long of a German tank and motorized-infantry column of upwards of 40 tanks and ten troop-carrying lorries. Obviously an attempt was being made to encircle the village. The column was moving from the north, apparently planning to outflank the village from the east. The brigade commander decided not to wait until the Germans reached the front line but to take the initiative and distract the enemy in the wrong (or southwards) direction so as to bring him under the flank blow of the Soviet troops stationed on the eastern outskirts of the village.

A small group of panzers were dispatched to attack the Soviet motorized infantry in a western direction in an effort to detect vulnerable spots in the defense line. The Nazi panzers were met by fire of antitank guns. Thereupon the Germans resorted to their favorite method: leaving motorized infantry and several tanks to cover the western direction, their main forces proceeded to encircle the village from the east and headed for the river crossing at its southeastern outskirts. But this very maneuver brought the Nazis into a trap. As originally planned, the right flank of the Soviet tank group met the enemy panzers with devastating fire and withdrew to the river crossing as soon as the Nazis deployed into battle order. In pursuing the Soviet tanks the enemy first came under flanking fire of Soviet antitank guns stationed on the eastern outskirts, and soon his battle formation was shattered. This was

followed by operations on the Soviet left flank group against the Nazi flank.

Clutched on three sides and realizing their hopeless situation, the Germans desperately dashed from position to position and opened up intensive fire in vain attempts to break into the Soviet motorized-infantry positions.

The enemy apparently hoped to merge with Soviet motorized infantry and under its cover to escape the devastating fire of Soviet tanks; for the latter would have to cease fire in order not to shoot up their own troops. However, all enemy attempts in this direction were cut short by criss-cross fire of Soviet antitank guns. Only after losing half his panzers did the Nazi commander order a retreat, which was carried out in great disorder with Soviet tanks in hot pursuit. This hard-fought battle resulted in a complete smash up of the enemy force and thus secured the safety of the Soviet rear. The enemy left up to 30 panzers and transport vehicles on the field, in addition to many killed and wounded.

In drawing conclusions from this engagement it should first of all be noted that the tank brigade achieved success in its active defense thanks to a correct appreciation of the situation and terrain, and to skilful use of these factors in battle. In no circumstances should the defenders wait passively until the enemy reaches the front lines and deploys for attack.

Defeat never comes to the man who makes a bold decision but to one who is afraid to shoulder responsibility and, therefore, passively awaits orders from superiors. One of Russia's greatest soldiers, Alexander Suvorov, remarked, "Stand firm, but always remember that you must launch a decisive attack. Whenever the least possibility presents itself you must attack with boldness and speed." These words of Suvorov have become the guiding rule for every Soviet commander in the organization of the defense.

which one could be quite warm and comfortable.

These exercises of his training period cannot be compared with those which the mountain soldier of today has to go through. At the present time he has learned what is far more important than that part of his training that is essentially related to the mountains. He has learned how to manage in every kind of terrain and to develop a sense of location and the ability to follow a trail.

The Training of German Mountain Troops

[Translated at the Command and General Staff School, Fort Leavenworth, Kansas, from a German article in the periodical *Koralle* 18 October 1942.]

Before the war it was often possible to watch our mountain troops engaged in their exercises. If one wished to see them, however, he had to keep his eyes open. Thousands of tourists passed over a great deal of territory which was "occupied" by troops without seeing anything at all of them, for it is one of the most important assignments of the soldier not to be seen. It was only when the usual roads were left and one climbed into the region of the mountain paths and chamois trails that he frequently ran onto a detachment of them loaded down with their heavy packs and all sorts of war equipment, busily engaged in climbing steep mountain walls with

A rocky terrain was occupied; there were daring "roping-down" maneuvers during change of position, and lightning-fast seizures of tactically important



Not only has he been toughened physically, but also he has gained that mental hardiness which is still more important and which defied all power. He has learned how to find his way better in heavy fog than another man in the full light of day; rain and snow do not af-



the help of ropes and "wall-hooks," a task which would have presented no little difficulty to a practiced crew without the packs. If a person were lucky and had a good pair of field glasses, it was possible once in a while from the vantage point of a mountain peak to watch the exercises.



points followed one after another. Man followed man in the occupation of seemingly inaccessible ridges, hung for a few moments to the rocks, reconnoitered, and a moment later disappeared on the other side.

And in the Winter . . . ! Far away from the haunts of skiers, deep in the wintry mountain fastnesses, it sometimes happened that there suddenly bore down from off to the side a dozen gray forms on skis carrying enormous packs on their backs. At the bottom of the slope they described a great curve and immediately, like wild game, swept up the opposite slope. On glaciers, one could observe how the soldiers constructed deep caverns in the ice and placed guns in position in them, and how sometimes for practice purposes, they constructed "emergency quarters," skilfully built huts of snow which would serve as places of refuge in



fect his energy, self discipline, or presence of mind; he no longer knows exhaustion as a physical or mental collapse.

Everyone knows what the mountain troops have accomplished in this war; the assault troops at Lemberg, the defenders of Narvik, the bunker fighters of

the Metaxas Line, the conquerors of Crete, the heroes of the Caucasus. But perhaps everyone does not know with what a tremendous exertion of all their strength these accomplishments were achieved. That they succeeded at all is almost unbelievable (call to mind the Dolomite front of the World War where



the line was so solid it could not be pushed back, yet where it was absolutely useless to consider an advance). In mountainous terrain it is easy to bar roads and highways to the enemy. The narrow valleys can be visible to the last corner and the enemy may be lurking just around every jutting shoulder of rock. Great detours are necessary, with all the dangers characteristic of the mountains and the danger from the enemy in addition, in order to attack an enemy position from behind or from the flank. A

frontal attack is as good as out of the question. Support by the air forces is also a vain hope, and support by the heaviest weapons is possible only in exceptional cases. Higher up in the rocky section of the mountains the conditions are even more difficult. The enemy generally controls all routes leading to these sections, and a few men are sufficient to defend a whole region. Here also neck-risking detours must be made if the enemy is to be attacked. The difficulties become superhuman in the region of eternal ice, where pack animals and vehicles have long since had to be left behind. The men are obliged to get the packs and weapons up with their own strength. The way leads over wild glaciers with yawning chasms, over ice-covered walls of rock and steep barriers of ice, and at the end there is no comfortable cabin waiting for the weary wanderer, but a wild battle with the enemy who is located in a safe and well-concealed place. Every gun, every bite of food, every round of ammunition must first be carried to the scene of attack and defense, in spite of all the forces of nature.

That it has been possible for such feats to be accomplished is due to an iron force of will that does not yield, to which the thought of yielding simply does not occur when faced by an enemy in which characteristics such as individual fighting ability, the readiness to stand by one another at any cost and the feeling of belonging together, is either totally lacking or lost. The spirit of that German who stood, night and day, on the northern wall of Eiger peak, surrounded by roaring avalanches of rock, ice, and snow, soaked by the spray of waterfalls which froze on him, and who in spite of this continued to hold desperately with cramped hands to the rope on which his comrade who long since had slipped and disappeared from his view was clinging—the spirit of this man lives in the German mountain soldier. He has carried the fame of these German forces into the far corners of the world.

Counterattack for Closing a Gap in the Main Battle Line

[Translated at the Command and General Staff School, Fort Leavenworth, Kansas, from a German article in *Militär-Wochenblatt* 6 November 1942.]

Situation: enemy, attacking from Threefinger Woods with about 300 men late in the evening of 3 August, had driven out weak artillery security from the gap between the 1st and 3rd Battalions and occupied Russian Heights as well as the east side of the village of G.

The reinforced 1st Company had reached the woods where the artillery is shown on the sketch during the night between 3 and 4 August.

Their mission: to recapture Russian Heights and the village of G. on the morning of 4 August.

Artillery: A light field howitzer and a battery of heavy field howitzers were assigned the task of cooperating with the 1st Company in the attack.

Weather: Hot and sunny, heavy dust.

The estimate of the following battle will be of rather a psychological nature. The young commander is to see what the mental and physical conditions were under which the apparently impossible was accomplished. The lesson is at the same time suited for the purpose of strengthening our confidence in the toughness and combat ability of our infantry. In addition

to this, there are revealed a few tactical lessons especially with respect to cooperation with heavy weapons, fighting strength, relative strength, and time calculations.

For 14 days the 1st Battalion had been on the defensive against a superior force of the enemy who attacked two or three times every day from Threefinger Woods. The artillery fire was extremely heavy over both positions and routes of approach. It was possible to move and supply troops only by night. The men were obliged to sit in their holes eighteen hours of the day.

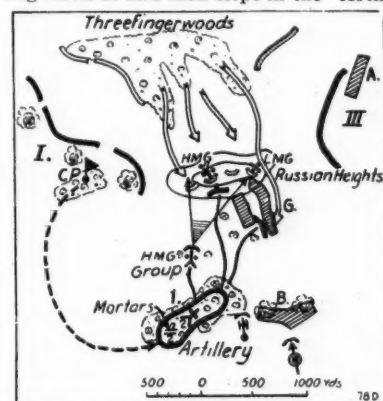
The gap to the left of the 3rd Battalion was secured by artillery and heavy infantry weapons. There were weak artillery forces acting as security on the north edge of G. On account of the great breadth of the gap it was not possible to fill it with the infantry.

The 1st Company which had so far also been engaged on the defense front, had pulled out during the night between the 2nd and 3rd of August, had made a counterattack with its neighbors on the left on the 3rd, and during the night between

the 3rd and 4th had returned to the woods where the CP is indicated on the sketch. About 1:00 AM, it received orders to get ready in the "Artillery Woods" for a counterattack on G. and Russian Heights. There was, therefore, no longer any time for relief by another company. The fighting strength of the company was just two platoons. Both officers and men had reached the limits of their strength physically and mentally on account of the defense fighting, nights without sleep, artillery fire, counterattack, and the lack of warm food for several days.

When the company commander announced the new task, there was no grumbling. On the way to the "Artillery Woods," a few of the men collapsed. The sentinels sent out for security dropped off to sleep after a short while.

While the company, in spite of fatigue, dug itself in and then slept in the "Artillery



Woods," the company commander searched in B., under heavy harassing fire by the enemy, for the commanders of the light and heavy howitzer batteries. It was decided that the advanced observers of both batteries were to report at 3:30 AM to the commander of the 1st Company at the north edge of the "Artillery Woods." On the suggestion of the artillerymen, both batteries were to fire on the enemy on Russian Heights from 4:00 to 4:05 AM.

What plan of battle was made by the commander of the 1st Company?

What orders were received by the heavy machine-gun and heavy mortar groups?

In the protection of the half-light of dawn, the heavy machine-gun group had gone into position in the brush, 300 yards north of the "Artillery Woods" in order to be able to hold down the enemy on the west side of Russian Heights.

The heavy trench mortar group was to follow back of the company.

At 3:30 AM, the company was ready to attack.

Unexpectedly, a heavy enemy artillery bombardment started. It caused casualties and confusion in the company which had just left their rifle pits for the attack. The advanced battery observers were nowhere to be found. The company had to reorganize again; the wounded had to be taken care of. 4:00 AM arrived in the meantime. A man who had been sent to the artillery positions in B. did not return. The harassing fire of the enemy artillery continued over the "Artillery Woods," B., and the area to the north of there. The company commander was wounded. We failed to use our own artillery fire.

In spite of this, the platoon on the right succeeded shortly after this in getting into the south edge of G. and immediately

going into position with their front toward the east, against the enemy in the portion of the town opposite them.

Under the fire protection of the heavy machine-gun unit, the left platoon, dashing ahead by groups or a man at a time, worked its way forward.

What were the orders of the platoon leader in cooperation with the commander of the heavy machine-gun unit?

The heavy trench-mortar group was caught by effective machine-gun fire and was at first unable to move with its weapon. The heavy machine-gun group was closed in with enemy trench mortar, AT cannon, and machine-gun fire; so the rifle platoon was left to itself. Every attempt to attack the strongly occupied Russian Heights under these conditions failed in the defense fire of machine guns, automatic weapons, and sharpshooters.

New casualties occurred.

The platoon dashed back, each man separately, into the outlying houses of G. It was impossible for it to remain on the slope under the full effect of the enemy weapons.

A light machine gun assumed the task of furnishing fire protection to them in this operation. The first gunner was put out of action.

One by one the men of the heavy machine-gun and trench mortar units worked their way to the right into G. Trench mortar fire was being laid down on the west part of G.

The platoon leader ordered the wounded to be removed, distributed the ammunition uniformly, manned the light machine gun again, and formulated a new combat plan.

What disposition did the platoon leader make?

It was not possible to collect the group leaders and commanders together and give them orders all at once. Hence, the platoon leader ran through the enemy fire to each of them and pointed out the targets in the terrain.

At about 6:00 AM, the platoon set out for the second time. It was reinforced by

a group from the platoon furnishing security on the right.

The heavy trench mortars engaged the heavy enemy machine gun situated opposite them after having previously, in an inconspicuous manner, obtained their range by firing at points in the terrain off to the side. The heavy machine-gun group, in position near the houses farthest to the north, held down the fire of the machine gun to the right.

With a desperate yell the platoon broke, with the last remnants of their strength, into the heavy machine-gun nest and the rifle nests on Russian Heights. Suddenly our own artillery fired into the men! The Signal Corps man with the signal pistol had fallen during the first assault. So there was nothing to do but dig in and wait. But even this crisis was met and mastered without anyone leaving Russian Heights.

But this situation could not be endured for too long, since on the right, from that position of Russian Heights which is common with the town and from the right and rear of the village, there was fire from sharpshooters and machine guns. Some of our men were killed by shots in the head.

The battalion commander appeared as our rescuer at this moment bringing with him an assault gun platoon.

When they caught sight of the assault guns, the enemy in the east part of G. fled. With the rifle platoons thus freed for action, the whole of Russian Heights was taken in one charge.

In the evening there appeared a battalion of engineers which relieved the 1st Company.

After a night's rest, it had to go again into position on the battalion's defensive front.

Lessons:

1. Let the young commander or leader get used to the fact that there is no situation in battle so difficult but that it may be surpassed by a more difficult one.

2. In training, it is well to have to make exertions once in a while that go beyond the ordinary.

3. The commanders of the rifle companies must be aware of the fact that artillery support may be lacking.

In this sort of attack, artillery support is generally more effective than artillery preparation.

The advance observers must decide at the proper time, in agreement with the infantry commanders, whether short, heavy bursts of fire are suited to the purpose or whether it is better to string the artillery fire out in assisting infantry to cross a particular stretch of terrain.

In the case of small attacks the time regulation is better if based on lines attained in the terrain than when timed by the clock.

Then also there is an old saying in the army that the infantry must be able to stand a fair share of the fire of their own artillery.

4. The heavy trench mortars got their range in this case by firing at range adjustment targets in order to be able to combine their fire in a surprise manner at the order of the group commander. The time for this was given in an order by the commander to the attacking troops.

5. Assault guns are especially well suited for getting stalled attacks under way again. They furnish the necessary fire protection, but do not go ahead of the troops as tanks do.

6. The counterattack was carried out with forces which were numerically inferior. It was necessary, tactically, for the rescue of the artillery. The command must, nevertheless, remember that, after engagements such as these, a company—in this case, the reinforced 1st Company—is not fit for action again until a little time has elapsed, both from the point of view of fighting strength and of the demands that would be made on them. These men must come first in the matter of care. The highest honors should be accorded them for their military achievements.

The whole art of war consists of a well reasoned and extremely circum-spect defensive, followed by a rapid and audacious attack.

—Napoleon.



MILITARY NOTES AROUND THE WORLD



CANADA

Army:

Active Army --- approximately 400,000
Overseas ----- " 180,000
In Canada ----- " 210,000
Growth during
1942 ----- " 120,000
Reserve Army -- " 200,000
(Canada at War)

Navy:

On 1 January 1943, the strength of the Navy was more than 49,000 men operating more than 500 ships. These vessels are of the following types: destroyers, corvettes, auxiliary cruisers, minesweepers, subchasers, patrol vessels, and small craft of various kinds.

At the outbreak of war the service was composed of 1,774 men. There were only 15 vessels in operation, consisting of six destroyers, five minesweepers, and other smaller vessels.

The task of the Navy is threefold: guarding Canadian shores; protecting merchant shipping, and co-operating with the sea forces of the United Nations.

Made up entirely of smaller naval craft, the Navy's most important duty has been the convoying of merchant vessels across the Atlantic. It has been 90% successful in this task. It has borne as much as 47% of the burden of the convoy work, aided in guarding 12,000 vessels carrying 65,000,000 tons of cargo to the United Kingdom.

The Canadian Navy has now nearly one half the number of men the Royal Navy had at the beginning of the War.

(Canada at War)

Air Force:

The Royal Canadian Air Force has grown from a pre-war strength of 4,000 to more than 150,000.

Functions of the R.C.A.F. are:

(1) Operation of the British Commonwealth Air Training Plan, which turns out aircrews for the Royal Air Force, the Royal Australian Air Force, the Royal New Zealand Air Force, as well as the Royal Canadian Air Force. More than 83,000 members of the R.C.A.F. are engaged in the training plan.

(2) The air defense of Canada.

(3) Co-operation with Britain and the United States in convoy protection.

(4) Fighting overseas with the Royal Air Force.

(Canada at War)

GERMANY

The ME 110s Fuel Consumption:

For the first time figures have been given of the fuel consumption of German fighter-bombers. A German war reporter stated recently that Me 110s require 275

gallons of fuel for sorties of average duration. The reporter published his figures in connection with the 2,000th operation of an Me 110 squadron. If the average duration of a sortie is 2½ hours, this squadron has totalled 5,000 hours or roughly 1,000,000 miles. For this distance the squadron needed 550,000 gallons of fuel. During these flights the squadron is said to have dropped 4,000 tons of bombs.

(The Aeroplane)

Naval Strength:

At the present time the German navy includes the following units. The figures below take into account losses sustained during the present war and their replacements:

Classes of ships	In commission September 1, 1939	Losses	Replaced by newly built units	Now in commission
Battleships	5	2	2	5 (of which 2 are of the "pocket" class)
Obsolete Battleships	2	Kept in Reserve		
Cruisers	2	1	1	2
Light Cruisers	6	2		2
Mine Sweepers and Destroyers	52	40	Un-known	about 70
Submarines	71	200+	400+	300+
Torpedo Boats	56+	40	Un-known	100+

(Krasnaya Zvezda)

Extension of West Wall:

Everyday life in Holland is now completely dominated by the consequences of a large-scale evacuation of the civilian population from the coastal zone. In preparation for the expected allied onslaught the Germans have established a defense zone about 35 miles deep where the strengthening of the "West Wall" is proceeding feverishly.

Amsterdam, The Hague, Rotterdam, Haarlem, Utrecht, Leyden, Delft, and many more important towns are included in this zone, where practically a state of siege has been introduced.

All movement of the civilian population in this area is strictly controlled. Nobody is allowed to take up residence there and the area is being slowly and systematically cleared of civilians. As they are forbidden to take their furniture and food

reserves with them, and removing transport has been prohibited, people are smuggling their most treasured possessions to the eastern half of the country where accommodation is growing scarce and where prices are naturally increasing sharply. Everything left in the evacuated house is taken over by the Nazis or the German army and the whole area turned into a prospective battlefield.

(The Times Weekly, London)

German Officer Corps.—Former Police Holding High Rank:

New light is shed on the composition of the German officer corps by S. S. Gruppenführer Bracht, writing in the administrative periodical *Deutsche Verwaltung*.

Long before Germany introduced conscription in 1935, thereby enormously expanding its armed forces, the police forces of the various German States (according to Bracht) were secretly reorganized into a single Reich police force, of whom 54 per cent, or 56,000 men holding positions as officers, were transferred to the *Wehrmacht* in corresponding positions. The scheme was started by Göring, who overruled the generals' objections, which were shared by police officials to whom the reduction of the police cadre seemed dangerous.

This gave the army a cadre of commanders with experience of the Four Years War, and schooled in years of street fighting, who acquired with surprising speed what they lacked in knowledge of tactics and modern arms. Of these police officers 89 have been promoted major-generals, 40 lieutenant-generals, and six full generals. By April 1, 1937, Himmler's recruiting and reorganization had restored the police force to its former numerical strength, and put it on an entirely military footing.

Svenska Dagbladet, drawing attention to Bracht's disclosures, points out that this undoubtedly affects the homogeneity of the German officer corps, the higher ranks of which have hitherto been almost entirely raised in the rigid Prussian military traditions, apart from the "Praetorian Guard" of the *Schutzstaffel*, while the subalterns have been drilled in the Nazi spirit through years of Hitler Youth and Arbeitsdienst service.

(The Times, London)

Submarine tankers:

According to announcement made by the German Naval High Command, German submarines are being supplied and repaired at sea by newly developed "tanker submarines." These are likened to "swimming hotels" that can service fighting submarines wherever they operate, submerging along with the craft they are retooling if hostile forces approach.

(Press Reports)

MILITARY REVIEW

The Tank Buster Plane:

A Russian report mentions that the new HENSCHEL HS 129, which has two Argus As 410 motors of 450 H.P. each, is being used with an alternative armament of one 30-mm cannon and two machine guns. This is a new departure in the employment by the Germans of a large-bore cannon and seems to confirm the belief that the Henschel was designed for close support and antitank work.

(Press Reports)

Caterpillar "Motorcycles":

For use in wooded terrain the Germans are employing a highly maneuverable, chain driven "motorcycle" which is capable of carrying three men.

The photo below shows this new vehicle.



(Münchener Illustrierte Presse)

ITALY

Air Force:

An officially inspired review of the equipment of the Regia Aeronautica this Summer was published recently in the *National Zeitung* of Essen.

This review admitted, that the Italian flying equipment was greatly inferior to that of the R.A.F. in 1941, but claimed that the shortcomings had been remedied recently.

In the fighter class the Macchi C.202 and RE.2001 single-seaters, with German liquid-cooled motors, have replaced the older C. 200s and Fiat G. 50s, both handicapped by their comparatively low-power radials. The RE. 2001 is designed, like the C. 202, by Mario Castoldi and is developed, as is the Spitfire, from Schneider racing seaplanes.

Of the bombers, the latest standard type is the Cant Z.1008, a development of the Z. 1007bis. The new version (previously known as the Z. 1007ter) has, among other improvements, twin fins and rudders. The armament is also increased.

The Savoia Marchetti S.M. 84, a development of the S.M. 79, is used as a torpedo carrier. It also has twin fins and rudders. This machine was used in the recent convoy battle in the Mediterranean. There is also an improved version of the Fiat B R.20, although the type number is not given. It has a re-designed nose and increased armament.

For dive bombing, the Regia Aeronautica is using the Ju 87B and also an improved version of the S.M. 85. The standard heavy bomber is the S.M. 82 three-motor type. For reconnaissance the Ca. 311 has been improved by fitting more glass panels to a re-designed fuselage.

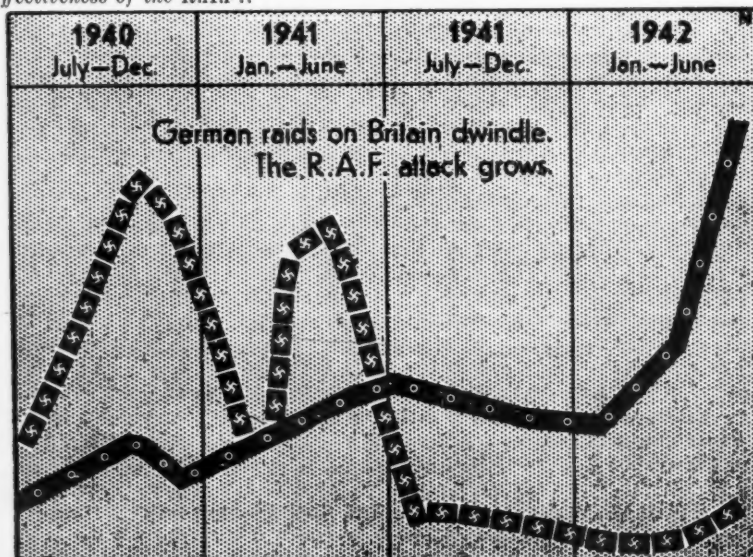
According to the German account "the crack Fighter Group" of the Regia Aeronautica is the 51st Stormo. The Group Captain, Colonel Aldo Remondino, and the Commander of the Second Wing, Maggiore Per Giuseppe Scarpetta, are credited with 100 air victories each against the Royal Air Force units stationed on Malta. They are the first two Italian fighter pilots who reached the 100 mark. The Luftwaffe has already 14 pilots who are credited with 100 and more victories. The German pilot who has the greatest number to his credit is Major Gollob, with 150 victories.

Presumably they are working on the well-known arithmetical law that one Englishman is worth at least half a dozen Italians and assessing their victories accordingly.

(The Aeroplane)

GREAT BRITAIN

Effectiveness of the R.A.F.:



(Press Reports)

JAPAN

Summary of Jap Chemical Munitions:

The Japanese have used a 110-pound gas bomb filled with a mixture of lewisite and mustard in recent bombing operations in China. This is reported to be their chief chemical bomb. It has a double exploder mechanism said to be designed to throw the liquid container into the air an impact whereupon it bursts and scatters its contents. Other chemical bombs are: 33-pound, 55-pound, 220-pound, and 440-pound. The gases used in these bombs are mustard, lewisite, phosgene and diphosgene.

Their incendiary bombs of the thermite type weigh between 15 and 50 pounds. They also have a phosphorus bomb weighing 120 pounds. The filling consists of a large number of small rubber pellets impregnated with phosphorus. The nose cap and exploder are filled with TNT and the fuse is of the instantaneous type. Upon explosion the pellets may be thrown as far as 50 yards. On exposure to air they burst into flame, burning 5 to 7 minutes with a flame 4 to 6 inches high. They can be easily extinguished by water or wet sand.

(Chemical Warfare Bulletin)

Decorations:

For bravery in action, 21,882 dead and 499 living officers and soldiers have been awarded the medal for distinguished services. The highest military decoration, the Order of the Golden Kite, was received by 2,126 dead officers and soldiers.

Coast Defense Measures:

Naval authorities have decided on the construction of special coast defense boats of the newest design, in order to release cruisers and battleships which have been previously employed for this duty.

(Pariser Zeitung)

Japanese Chemical Warfare Tactics:

The essential tactics of the Japanese gas attack, based on reports of the employment of gas in China and captured orders, are: concentration on the most important section of the objective; use of nonpersistent gases on the offensive, persistent gases on the defense; achieve surprise by shelling with HE followed immediately by chemical shells; using smoke to hide gas clouds, or precede them; sudden gas attacks; dawn or evening bombardments with maximum wind speed of 11 miles per hour.

(Chemical Warfare Bulletin)

SPAIN

Spanish Artillery Technique:

The rate of fire of guns is determined in the following manner, according to regulations: normal rate of fire for calibers between 65- and 75-mm, 120; for calibers 100- and 105-mm, 60 to 120; for calibers 149- 150- and 155-mm, 45; for the 210-mm howitzer, 12; for the 260-mm mortar, 5; for the 305-mm howitzer, 4 rounds per hour. The maximum rates of fire decrease with greater duration of the fire. For a duration of less than two minutes they are: 11 for calibers up to 75-mm; 6 for the calibers of 100- and 105-mm; 3 for calibers between 149- and 155-mm; 1½ for the 210-mm howitzer; 0.2 rounds per minute for the two largest calibers. With durations of fire between 2 and 5 minutes the figures are, respectively, 7, 4, 1.5, 0.2, 0.06 rounds per minute;

with a duration of fire of 5 to 15 minutes, respectively, 3, 1, 0.2, 0.06 rounds per minute. As often as possible the rate of fire should be slow in order to spare the weapon—that is, slower than the normal rate of fire.—(*Ejército*, August 1942.)

Towed guns should never be drawn at a greater rate of speed than 8 km. (about 5 miles) per hour, except when they are transported on auxiliary carriages with rubber-tired wheels. Guns carried on trucks can also be transported at greater speeds.

(*Militär-Wochenblatt*)

SWITZERLAND

Antiaircraft Guns:

The Swiss, 75-mm cannon Model 38, of Schneider construction (figure 1), fires a projectile of 14 pounds from a barrel with a length of 49 calibers and a muzzle velocity of 2,700 ft. per second vertically



FIGURE 1.

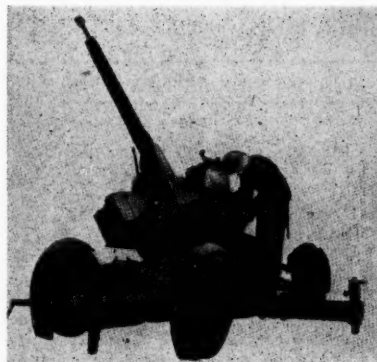


FIGURE 2.

to a height of 30,000 feet. In firing position the gun weighs 6,300 pounds. For transportation a two wheeled axle is used, which is removed for firing. The gun has a rotating base mount with three arms; the barrel, a muzzle brake.

The water-cooled 34-mm AA cannon of the Berne Arms Works (figure 2), is built on a four wheel trailer. In firing, the wheels are raised. The barrel of this gun also has a muzzle brake.

(*Militär-Wochenblatt*)

U. S. S. R.

Light Tank:

As a light tank, the Russians are employing a thirteen-ton tank (see photo) which has been constructed through a manufacturing permit from Christie. The tank may be used either as a wheel or full track vehicle. The change-over requires about a half hour's time. With caterpillar tread, the tank develops a speed of 75 km. per hour; with wheels, a speed of 100 km. per hour. It is 5.7 m. long, 2.3 m. wide and 2.4 m. in height. It is provided with armor of about 15-mm

thickness. It requires a crew of 3 men. The tank is armed with a 45-mm cannon and a 7.62-mm machine gun. Both weapons are built into the turret.

In the photo, we also see a wrecked antitank cannon. This gun, built very closely along the lines of the German



37-mm antitank cannon, has a caliber of 45-mm, weighs 425 kg. in firing position, and possesses a range of 7,000 meters.

(*Deutsche Wehr*)

Russian Combat Equipment:

A large number of mines are used which exhibit a great many special characteristics.

The smallest infantry mine is flat and round, weighs 90 grams (about .2 lb.) and contains 50 grams (about .11 lb.) of explosives. A larger mine is shaped like a box and has a 200 gram (about .4 lb.) charge. There are several models of pressure operated mines.

For defense against tanks, wooden mines were constructed with a charge of 3.6 kg. (about 8 lbs.). Small levers extend up out of the ground, which set off the primer when they are touched. Others have pressure operated or electrically operated primers. The Galitzki mine is arranged like a gun for the purpose of suicide. A projectile-like mine is fired at the tank from a certain distance as soon as the latter touches a wire strung across the pathway. Dogs have been trained to seek their food under tanks. Before these dogs were sent out of trenches, explosive charges, weighing from 6 to 12 kg. (13.2 to 26.4 lbs.) were fastened on their backs and these were supposed to be set off by levers which stuck up out of the charge.

Delayed action mines have primers operated by clockworks which run up to 35 days. Other mines have primers sensitive to vibration and are set off, for example, by a passing railway train.

Flame throwers are also often employed. Fixed flame throwers are set in the ground in front of the position. One model has a long steel tube, another several nozzles in order to be able to operate in all directions. Ranges of over a hundred meters (about 330 feet) have been observed in the case of the steel tube; ranges of up to one hundred meters in the case of the nozzles. One of the portable flame-throwers looks like a rifle. The fuel oil tank has the shape of a pack in order that the identity of the weapon may remain unknown as long as possible. A range of 30 meters (about 100 feet) is reached with this very light apparatus. Flame-throwers may also be built into the T-26-B tanks.

Another piece of combat equipment is the rocket-mine launching apparatus

which fires mines operating on the rocket principle. This arrangement, called an automatic trench mortar, is built onto a

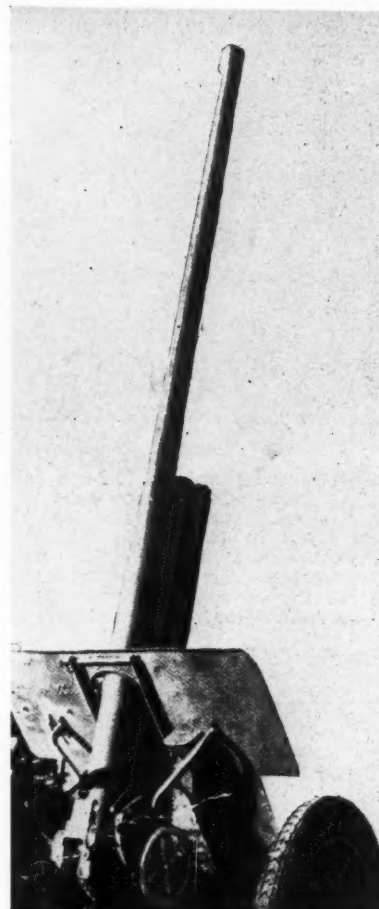


FIGURE 1.

truck. It can be seen in a photograph of the apparatus that the projectiles are arranged in three rows, one above the other.

Russian Light Field Cannon

The older, M-02 field cannon, are mostly used for the armament of ar-



FIGURE 2.

mored trains. With a longer barrel, as Model 02/30, the cannon may have a tube 30 or 40 calibers in length (see figure 1). This gun is characterized by a box trail, firing weight of 1300 kg. (about 2,860 lbs.) and a maximum range of 13 kilometers (about 8 miles). The 76.2-mm field cannon, Model 36, is

MILITARY REVIEW

completely new construction with split trail and an especially large elevation range. A range of 13.5 kilometers (about 8.4 miles) is obtained with a projectile weighing 6 kg. (about 13.2 lbs.). Other constructional principles were repre-



FIGURE 3.

sented by the Model 39, 76.2-mm field cannon which has about the same ballistic properties and is also just as heavy—1500 kg. (about 3,300 lbs.). The two cannons are easily distinguished from one another by the fact that the Model 36 has the air-operated counter-recoil apparatus and the recoil brake both in

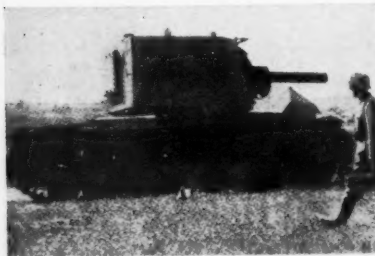


FIGURE 4.

the cradle under the barrel, but Model 39 has the air-operated counter-recoil apparatus on top of the barrel. It is shown by photographs that the Soviets also have a gun of equal caliber with a muzzle brake. Likewise 76.2 cannon are built into the tanks, but these are very different from the field cannon.

A Short Review of Russian Armored Vehicles

The six-wheeled scouting car has an armor up to 13-mm in thickness, and with its 6 tons of weight, develops a speed of 50 kilometers (about 31 miles) per hour, has a revolving turret which has recently been rounded off into a conical shape, a 45-mm cannon and a machine gun with an extra machine gun beside the driver's seat. It carries a four man crew.

The 3-ton amphibian tank is being replaced by one of 5 tons' weight with the designation of T-40. Its armor is up to 6-mm in thickness is the weakest places; generally, however, 10- to 14-mm. Its armament consists of an extra heavy and a 7.62-mm machine gun. It has a two-man crew. This tank with its length of 4 meters, breadth of 2.4 meters, and height of 2 meters (about 13.1, 7.9, and 6.5 ft. respectively) resembles in appearance the new, 8-ton T-60 tank; differs from it merely by the absence of the worm drive in the rear. The T-60 has a 20-mm cannon and develops a speed of 40 kilometers (about 25 miles) an hour.

Several variations in the T-26 are known. Model A has two turrets, Model B has one, Model C a conical, rounded turret. The tank reaches a speed of 30 kilometers (about 19 miles) per hour with a weight of 10 tons. The armament of the most recent model is one 45-mm cannon and two or three machine guns. Model B can also be equipped with a flame thrower in place of the cannon.

The light, BT tank is built after the Christie model, develops a speed of 50 kilometers (about 31 miles) per hour with its caterpillar tread and 70 kilometers (about 44 miles) per hour on its wheels. The tank is usually armed with a 45-mm cannon and one machine gun, weighs 14 tons and carries armor up to 20-mm in thickness.

The medium tank, T-34 (see Figure 2), of 26 tons weight, carries armor 40-mm in thickness which is reinforced in places to a thickness of up to 70-mm. This tank which is 6 meters in length, 3 meters in width, and 2.5 meters in height (about 19.6, 9.8, and 8.2 feet respectively) has a 76.2-mm cannon. It has a crew of 4 men who operate 2 machine guns. Two medium tanks with the designations of T-28 and T-35 have attained no importance.

The heavy 44-ton tank (see Figure 3) has armor of 75-mm thickness, carries a 76.2 mm cannon in its revolving turret and two or three machine guns in addition. It develops a speed of 35 kilometers (about 22 miles) per hour and has a six-man crew.

The 52-ton tank (see Figure 4) is equipped with the chassis of the 44-ton tank. However, it is 3.3 meters (about 10.8 ft.) in height, on account of the larger turret. There are a 152-mm howitzer and a machine gun built into the revolving turret. The armor is 75-mm in thickness and the maximum speed 35 kilometers (about 22 miles) per hour.

English Mark II and III tanks and American tanks are scattered to a varying degree.

There is a low-built, caterpillar tread tractor used for towing AA cannon and other guns. The driver and a machine gunner are protected by armor; the rest of the crew rides on the tractor without protection. With an additional armor protection, this machine has also been used as a self-propelled mount for AT cannon.

(Deutsche Wehr)

Skiers Towed by Tanks:

A new winter of war has developed new forms of teamwork between various arms. For the first time, Soviet skiers are effectively cooperating with tanks in piercing the German defenses on the central front.

In some cases the tanks pull the skiers behind them on huge sleds, in others the skiers themselves follow closely in the wake of the tanks. During assaults on strongly fortified centers of resistance, tommy-gunners on skis, clad in white gowns and protected by a mass of anti-tank weapons, infiltrate into the enemy's dispositions singly and in groups and strike at him from the rear, disorganizing his anti-tank defenses. Simultaneously Soviet tanks attack from the front.

These groups of skiers cooperating with tanks are also equipped with light mortars and machine guns mounted on sledges. Skiers are also very helpful to tanks in overcoming various obstacles. They fill in anti-tank tracks and clear mine fields.

(Soviet Embassy Bulletin)

Armored Vehicles:

The six-wheeled armored scouting car (Figure 1) has a length of 2.4 meters, a breadth of 1.92 meters and a height of 2.4 meters. It is the result of armoring of a regular commercial truck which is



FIGURE 1.

based on a copying permit from Ford. The water-cooled 95 H.P. motor gives a top speed of 44 miles per hour. A caterpillar tread can be fitted around the rear wheels. The armor is up to 14-mm in thickness. The crew is composed of 4 men. In the rotary turret is mounted a 37-mm cannon; in front, beside the driver's seat, a Model 11 Degtiarev machine gun is mounted. Weight, ready for combat, 7 tons.

A medium tank of 13 tons weight (Figure 2) is patterned after an Amer-



FIGURE 2.

ican Christie license. It can be used either on wheels or as a caterpillar-tread vehicle. The time required for switch-over, 30 minutes. On the caterpillar tread the vehicle reaches a speed of 45 miles per hour; on wheels, a speed of 60 miles. Length, 5.7 meters; breadth, 2.3 meters; height 2.4 meters. The crew consists of 3 men. In the rotary turret are mounted



FIGURE 3.

a 45-mm cannon and a Degtiarev model machine gun.

The heavy Model T 34 tank (Figure 3) weighs 26 tons and reaches a maximum speed of 38 miles per hour. Its length is 6 meters, breadth 3 meters, height 2.5 meters. The T 34 tank employs a 4-man crew. In the revolving turret are a 76.2-mm 38/39 L 30.5 tank cannon and a machine gun. An additional machine gun is

MILITARY NOTES AROUND THE WORLD

in the front beside the driver. The armor is 40-mm thick.

Five rollers support the weight of the tank on the exceptionally broad treads.

(Militär-Wochenblatt)

AA Weapons:

The M 31, 76.2-mm AA cannon (see Figure) is transported on a two-wheeled auxiliary carriage. Its weight ready for



firing is 3900 kg. (about 8,580 lbs.) and ready for transportation, 5000 kg. (about 11,000 lbs.). The tube serves for use in the 76.2-mm AA cannon, M 38, which is built as a four-wheeled towed weapon. Its weight ready for firing and for transportation is about 4,300 kg. (about 9,460 lbs.). The M 39 85-mm AA cannon which is built as a four-wheeled towed cannon, has a like weight and is provided with a muzzle brake. Shells weighing 6.5 kg. (about 14.3 lbs.) are fired from the 76.2-mm L/55 tube, and shells weighing 9.2 kg. (about 20.24 lbs.) from the 85-mm tube.

(Militär-Wochenblatt)

A Special Russian Sled:

An arrangement worth copying is employed in the repair stations of the eastern theater of operations. It is a special sled used by the Russians for the transportation of boilers as shown in Figure 1. In Figure 2 the construction of the boiler is seen. At the extreme left of the picture is shown the device by which the boiler is fired. This is inserted into the boiler, closing the opening in it at the same time. The boiler is insulated with felt. The wood covering protects it from injury and constitutes additional insula-

tion. Figure 1 shows additional construction details including the folding smoke stack, the manner in which the boiler is attached to the sled runners, etc. The boiler may be filled with either water or oil. The advantages of such an easily transported arrangement in extremely



FIGURE 1.

cold weather are evident and require no further explanation.

A motor vehicle park has made use of these sleds in its servicing of motorized equipment: e.g., the boilers are built into a wall in a manner which permits them to be fired from the outside of a building. Not a great deal of work is required, and

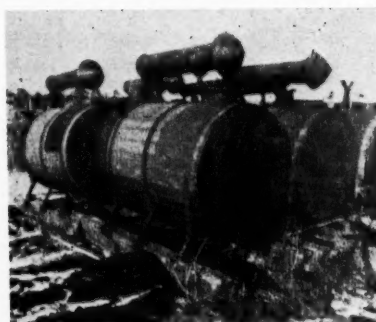


FIGURE 2.

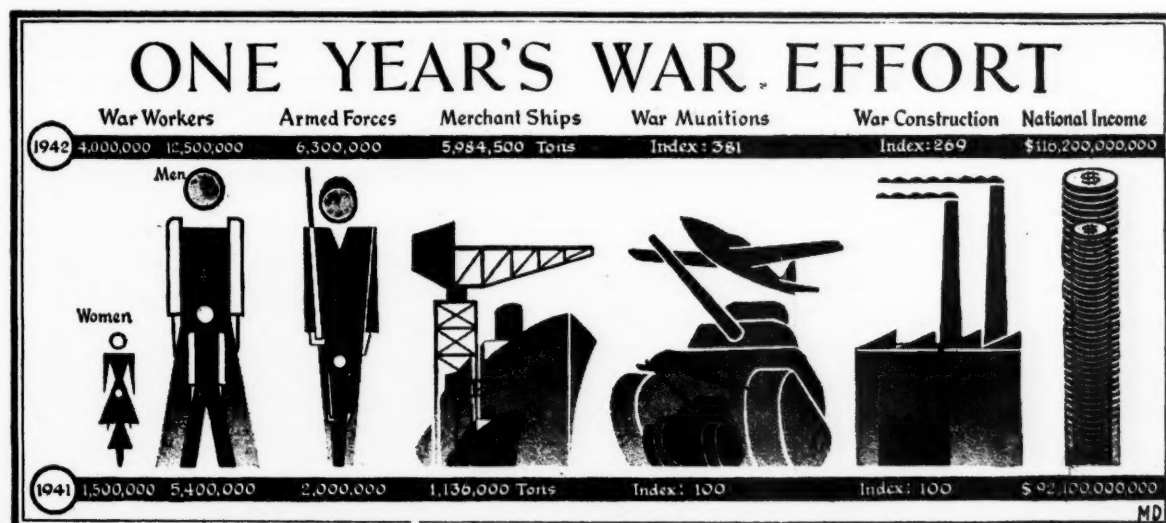
the service station is always provided with warm water and oil. The arrangement has proved to be of very great value.

(Die Panzertruppe)

UNITED STATES



(Newsweek)



(Time)

Book Reviews

THE TOOLS OF WAR

BY JAMES R. NEWMAN

398 pages . . . Doubleday Doran & Co., Inc., New York City.

Under the chapter headings Modern Warfare; Light Arms; Field Artillery; Fortifications and Siegecraft; Tanks, Motorization, and Mechanization; The Tools of Sea War; and the Tools of Air War, the author has succeeded in covering many of the historical facts in the background of the various weapons and much information regarding the modern tools of war.

Profusely illustrated by many line drawings and half-tone plates, some of which will be of high interest because they picture a variety of the oldest known weapons for war use, the book surveys the field of its title in easily read and well developed style. A very good index is supplied which makes reference to subjects quick and easy for the reader who is seeking particular information in the volume.

While no book of four hundred pages could try to cover the field completely, Mr. Newman has presented a vast amount of information of the various war weapons, particularly in his long chapter on the tools of air war. The average soldier and civilian reader should obtain a very good background, historical and contemporary, sufficient for anyone who does not seek specialized technical information in ordnance.

THE STRATEGY OF INDIRECT APPROACH

BY B. H. LIDDELL HART

316 Pages . . . Faber and Faber, Ltd., London.

For a great many years Liddell Hart has been Great Britain's leading exponent of a military strategy whose chief characteristic is a lack of the offensive, in its modern sense. Such terms as "defensive strategy" and "war of limited liability" are ample descriptions of the author's concepts which, for a long time, undoubtedly exerted great influence on the British military and diplomatic policy.

"The Strategy of Indirect Approach," is a re-print, with some extensions, of Liddell Hart's earlier "The Decisive Wars of History," originally published in England in 1929. Due to the author's scholarly approach to the subject and his profound knowledge of history the new publication deserves careful attention by all serious military students.

WE'RE IN THIS WITH RUSSIA

BY WALLACE CARROLL

264 Pages . . . Houghton Mifflin Co., Boston

Mr. Wallace Carroll, a foreign correspondent of the United Press, was sent to the Soviet Union on a journalist's assignment in August 1941. He arrived in Moscow at the very height of the German offensive against the Soviet capital and

remained there until the middle of October, when he accompanied the American and other foreign missions to Kuibyshev, where these latter were evacuated.

The author does not conceal his deep sympathy for the Soviet peoples. He is open in his admiration for their war effort. Having visited the Soviet-German front and conversed with a great many of the Soviet military, Mr. Carroll is profoundly impressed by the discipline, training, leadership and the fighting capacity of the Red Army. His admiration is great for the civilian population of the U. S. S. R. and its devotion to the ultimate goal of victory.

The book is written in the easily read style of the newspaper reporter. It abounds in observations of great interest to those to whom the resistance of the Red Army was a great surprise. It helps to clarify some of the moot questions about the U. S. S. R. which for so many years have puzzled the western world.

Mr. Carroll makes an eloquent appeal for close cooperation between the United States and the U. S. S. R. both in this war and in the peace to come.

THE FACE OF THE WAR, 1931-1942

BY SAMUEL H. CUFF

290 Pages . . . Julian Messner, Inc., 8 West 40th Street, New York.

Samuel H. Cuff is a radio news analyst presented weekly by the National Broadcasting Company, and he is also director of the radio unit of the American Express Company's educational department. His book is a summary of events relating to the present world conflict. While backgrounds prior to 1931 are occasionally introduced, the book is principally a condensed account of the period beginning in 1931 with the Japanese invasion of Manchuria, and ending rather abruptly on March 1, 1942. The author strives always to present the cold facts with a modicum of interpretation, much of his story being presented in the form of a day-to-day calendar of events rather than of a narrative history of the period covered.

There are fifty-one pages of maps. These are frequently rather carelessly constructed, often omitting important places mentioned in the text, sometimes using one form of a place-name while the accompanying text uses another (e.g., Persia, Iran; Peiping, Peking; Viborg, Viipuri, etc.), and occasionally containing errors.

For the general reader without a previous knowledge of world history during the past eleven years, the organization of this book may prove somewhat confusing, and much of the material is too condensed to provide a satisfactory understanding of the events mentioned in such profusion. For any one with an adequate background, however, the book can be recommended as a valuable summary for review, and it should serve well to refresh the mind concerning the chronological sequence of events that led step by step to the condition of world affairs existing early in 1942.

HOW JAPAN PLANS TO WIN

BY KINOAKI MATSUO

323 Pages . . . Little, Brown and Co., Boston.

"Know your enemy" is a concept which should be faithfully adhered to by every Army officer, and it is with this in mind that the reviewer heartily recommends "How Japan Plans to Win" for the most thoughtful consideration of our officers.

In translating this book from the Japanese, Mr. Kilsco K. Haan has rendered a distinct service, for his effort has opened to the American reader the unfathomable designs of the Nipponese naval and military minds. As the translator points out, the author, Kinoaki Matsuo, whose book appeared in Tokyo in October, 1940, is an intelligence officer in liaison between the Japanese Foreign Office and the Admiralty. Mr. Matsuo is also a high ranking official of the "Black Dragon Society," a religious and political militarist organization of great influence in Japan. All this in combination with the fact that Mr. Matsuo, in his foreword, expresses appreciation to the intelligence bureau of the Navy Department, leads to the inevitable conclusion that the contents of his book reflect in true light the plans and hopes of those in Japan who have precipitated and are now waging the war against the United States and our allies.

CHAMP FERGUSON, CONFEDERATE GUERRILLA

BY THURMAN SENSING

256 Pages . . . Vanderbilt University Press, Nashville, Tenn.

During the War between the States, Champ Ferguson fought for the South as a guerrilla in the Cumberland Mountains of the Kentucky-Tennessee border region. There were intervals when he served with General John H. Morgan and with "Fighting Joe" Wheeler, but through most of the war period Ferguson ranged his native hills, shooting and stabbing men apparently as much for personal vengeance as for the sake of the Southern cause. So dark was his record that, after the war, he was not allowed the usual right of surrender and parole, but was taken prisoner in May, 1865, accused of the murder of fifty-three of the many persons he had killed, tried by a military court in Nashville, Tennessee, and hanged on October 20.

Ferguson's biographer, himself a native of Tennessee and the grandson both of a Confederate and of a Union officer, has drawn most of his information from contemporary newspaper accounts of the trial, and these he quotes at considerable length. He has also resorted to official records, memoirs, histories, personal interviews, and visits to scenes described.

The book reveals a phase of the war which has never been fully investigated by historians. Its value is mainly historical, for the guerrilla of Ferguson's day had very little in common with the guerrilla or Commando of today.

Library Bulletin

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Aerosphere — 1942.

American Review on the Soviet Union. — Vol. 4. 1941.

BERCHIN, MICHEL, & BEN-HORN, ELIAHU. — **The Red army.**

Bomber Command Continues. — The Air Ministry account of the rising offensive against Germany.

BRECKENRIDGE, ROBERT P. — **Modern camouflage.**

BROWN, CECIL. — **Suez to Singapore.**

BULLOCK, CECIL. — **Etajima, the Dartmouth of Japan.**

Canada Year Book — 1942. Dominion Bureau of Statistics, department of trade and commerce.

CARTER, HODDING. — **Lower Mississippi.**

Chronicles of Oklahoma. — 1941.

CHURCHILL, WINSTON S. — **The unrelenting struggle.** (War speeches).

COMMODITY RESEARCH BUREAU. — **Commodity year book.** (Master edition).

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CONSIDINE, BOB. — **MacArthur the magnificent.**

COWIE, DONALD. — **The campaigns of Wavell.** The inner story of the empire in action.

CUNEO, JOHN R. — **Winged mars.** Vol. I. The German air weapon. 1870-1914.

Current History. — Vol. 1. Sept. 1941-Feb. 1942. Vol. 2. Mar.-Aug. 1942

DARNALL, J.R. & COOPER, V.I. — **What the citizen should know about wartime medicine.**

DENNY, HAROLD. — **Behind both lines.**

DORFALÉN, ANDREAS. — **The world of General Haushofer.**

DOUHET, GIULIO. — **The command of the air.**

DURANTY, WALTER. — **The Kremlin and the people.**

ECKENRODE, H.J. — **George B. McClellan.** The man who saved the Union.

ENGINEER SCHOOL. — **Interpretation of aerial photographs.** Composite German manual.

ESTEVEZ, LUIS RAUL. — **Combat training.**

FARAGO, LADISLAS (Edited by). — **German psychological warfare.**

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Federal Supplement. Cases argued and determined in the District Courts of the U.S. and the Court of Claims. Vols. 45 & 46.

FISCHER, LOUIS. — **A week with Gandhi.**

FORD, ALFRED G. — **Handling and stowage of cargo.**

GATHINGS, JAMES A. — **International law and American treatment of alien enemy property.**

GLASER, COMSTOCK. — **Administrative procedure.**

GLESINGER, EGON. — **Nazis in the woodpile.**

GHADJANZEV, ANDREW J. — **Formosa today.** An analysis of the economic development and strategic importance of Japan's tropical colony.

GREAT BRITAIN. WAR OFFICE. — **Field Service Regulations.** Vol. I. Organization and Administration. 1930.

GULICK, LUTHER & URWICK, L. (Edited by). — **Papers on the science of Administration.**

HARGROVE, MARION. — **See here, Private Hargrove.**

HARPER, FRANK. — **Military ski manual.**

HART, W.E. — **Landmarks of modern strategy.**

HAWTHORNE, HILDEGARDE. — **Ox-team miracle.** The story of Alexander Majors.

HEADQUARTERS ARMY AIR FORCES. INTELLIGENCE SERVICE. **Dictionary of aeronautical terms.** English, French, Japanese, German.

HILL, JUSTINA. — **Silent enemies.** The story of diseases of war and their control.

Journal of Modern History. Vol. 13. 1941.

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KAFKA, M. MARTYN. — **Flying health.**

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KANTOR, MACKINLAY. — **Happy land.**

KING, GENERAL CHARLES: **Campaigning with Crook and stories of army life.**

Captain Blake.

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The Deserter.

Found in the Philippines.

From the ranks.

From school to battle-field.

A garrison tangle.

The General's double. A story of the army of the Potomac.

Kitty's conquest.

Lanier of the cavalry, or A week's arrest.

Marion's faith.

Ray's daughter: A story of Manila.

A soldier's secret: A story of the Sioux War and, An army Fortia. (Two novels)

Trials of a staff-officer.

A trooper Galahad.

Two soldiers and, Dunraven ranch. (Two novels)

Under fire.

Waring's peril.

LEEMING, JOSEPH. — **Modern ship stowage.** Including methods of handling cargo at ocean terminals.

LEONARD, CAPTAIN ROYAL. — **I flew for China.** Chiang Kai-shek's personal pilot.

LIDDELL HART, B.H. — **This expanding war.**

LINDSAY, MAJOR GENERAL G.M. — **The war on the civil and military fronts.**

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McGHEE, ADDISON F., JR. — **He's in the armored force now.**

McMAHON, MATTHEW M. — **Conquest and modern international law.** The legal limitations on the acquisition of territory by conquest.

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MILITARY INTELLIGENCE SERVICE. — **Order of battle of the German army.**

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MITCHELL, KATE L. — **India without fable.** A 1942 survey.

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NYSTROM, J. WARREN. — **Surinam.** A geographic study.

PEASLEE, AMOS J. — **A permanent United Nations.**

PUBLIC ADMINISTRATION SERVICE. — **Case reports in public administration.** Vols. I & II.

RIESS, CURT. — **The self-betrayed.** Glory and doom of the German generals.

SANDBURG, CARL. — **Storm over the land.** A profile of the Civil war.

SHRIDHARANI, KRISHNALAL. — **Warning to the West.**

SKINNER, WALTER E. — **Mining year book.** 1941.

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STARHEMBERG, PRINCE. — **Between Hitler and Mussolini.**

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STEINBECK, JOHN. — **Bombs away.** The story of a bomber team.

STEINER, GEORGE A. — **Economic problems of war.**

STONE, DONALD C. — **Management of municipal public works.**

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UNITED STATES DEPARTMENT OF AGRICULTURE. — **Administrative management.** (Principles & Technique).

UNITED STATES HYDROGRAPHIC OFFICE. — **British Islands pilot.** South coast of England, from the Scilly Islands to the Thames.

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ZHANKOLYA, N.N. & STANKEVICH, A.V. — **Artillery in mountainous country.**

ZIMMERMAN, DR. C.L. — **White Eagle, Chief of the Poncas.**

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 THE WAR IN THE AIR
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 FOREIGN AIRCRAFT—SOME TECHNICAL ASPECTS. Lieut. Colonel J.M. Hayward
 COMBAT NOTES FROM DOWN UNDER. Major General Ralph Royce
 HOW TO KEEP WELL IN THE ALASKAN THEATER
 LEARNING THE TRICKS OF GLOBAL FLYING. Herbert H. Ringold
February 1943
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 HERE COME THE AIRBORNE TROOPS. Brigadier General Fred S. Borum

ORGANIZATION OF THE ARMY AIR FORCES. Colonel Byron E. Gates
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ARMY LIFE
January 1943
 COURTESY IN THE ARMY
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 MEDICAL AND SANITARY DATA ON ANGLO-EGYPTIAN SUDAN. Captain William A. Howard
 MEDICAL NOTES ON THE OFFENSIVE IN THE WESTERN DESERT
 ARMY SPLINTS. Colonel Norman T. Kirk and Lieut. Colonel Leonard T. Peterson
 THE TRAINING OF MEDICAL AND SURGICAL TECHNICIANS: COURSE FOR MEDICAL AND SURGICAL TECHNICIANS
 COMMITTEE ON MEDICAL LIBRARY SERVICE FOR THE ARMED FORCES. Colonel Harold W. Jones
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 SECURING OF CAPTURED POSITIONS. Major M.M. Andreyev
ARMY ORDNANCE
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 ARTILLERY TODAY. Major General H. Rowan-Robinson
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 PROTECTION AGAINST SABOTAGE. R.W. Reynolds
ARTILLERISTISCHE RUNDSCHAU
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 ARMORED ARTILLERY IN THE SOVIET CAMPAIGN. [Panzerartillerie im Sowjetfeldzug.] Captain Duic

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 [Zusammenarbeit zwischen schiessender Artillerie und Beobachtungsbeteiligung beim Einschossen mit Schall und Licht.] Lieutenant Westpfal
 EXPERIENCES WITH CAPTURED CANNON.
 [Erfahrungen mit Beutekanonen.] Lieutenant Schuppan
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 PREPARATION FOR INSTRUCTION.
 [Vorbereitung auf den Unterricht.] Captain Thiel
 HOW IS AN EMERGENCY FIRE DIRECTION CHART MORE QUICKLY PREPARED WITH A 1:100,000 MAP?
 [Wie lässt sich bei Karte 1:100,000 der behelfsmässige Schiessplan schneller vorbereiten?]
 A BUNKER COMMUNICATION SYSTEM IN THE FIRING POSITION.
 [Bunkerbesprechungsanlage in der Feuerstellung.] Captain Jensen
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 THE DEFENSE OF BIR HAKEIM MAY 26 — JUNE 10, 1942
 FRONTAL ATTACK IN AIR COMBAT
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WHAT THE LOCAL DEFENCE FORCE MUST REALIZE. R.
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THE SNIPER. C.B. Lister
INTELLIGENCE — A PRIMARY FUNCTION OF THE L.D.F.
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AMPHIBIAN TANKS AND CARS.
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A REVIEW OF THE 1942 EASTERN CAMPAIGN.
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[Bericht über Leistungen der Verbände einer Infan-
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OIL TRANSPORTATION
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GERMAN SOLDIER. MARK IV IN THE TANK TRAP.
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ENGINEERS, TRAILBLAZERS FOR THE INFANTRY. BOLD
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Aero = Aeroplane (Great Britain)
Air Force = Air Force
Army Life = Army Life
A Med Bul = Army Medical Bulletin
A Of = The Army Officer
A Ord = Army Ordnance
Art Rund = Artilleristische Rundschau (Germany)
Cav Jour = Cavalry Journal
CA Jour = Coast Artillery Journal
An Cos = An Cosantoir (Ireland)
Deut Wr = Deutsche Wehr (Germany)
FA Jour = Field Artillery Journal
Ftg Forc = Fighting Forces (Great Britain)
Inf Jour = Infantry Journal
Jour RAMC = Journal of the Royal Army Medical Corps (Great Britain)
Jour R Art = Journal of the Royal Artillery (Great Britain)
Jour RUSI = Journal of the Royal United Service Institution (Great Britain)
MC Gaz = Marine Corps Gazette
Mil Mitt = Militärwissenschaftliche Mitteilungen (Austria)
Mil-Woch = Militär-Wochenblatt (Germany)
Mil Eng = Military Engineer

Mil Surg = Military Surgeon
Nav Inst Proc = Naval Institute Proceedings
Panzer = Die Panzertruppe (Germany)
Pion = Pioniere (Germany)
QM Rev = Quartermaster Review
Rev Mil = Revista Militar (Argentina)
RAF Quar = Royal Air Force Quarterly (Great Britain)
Roy Eng Jour = Royal Engineers Journal (Great Britain)
Vet Bul = Veterinary Bulletin
Die Wehr = Die Wehrmacht (Germany)
Wehr Mon = Wehrtechnische Monatshefte (Germany)
Ws & Wr = Wissen und Wehr (Germany)

Fortune = Fortune
Harper's = Harper's Magazine
Lib = Liberty
Life = Life
Nat Geog = National Geographic Magazine
New Rep = New Republic
Newsweek = Newsweek
Reader's Dig = Reader's Digest
Round Table = Round Table (Great Britain)
Sat Eve Post = Saturday Evening Post
Sci Dig = Science Digest
Scien Amer = Scientific American
Sov Rus = Soviet Russia Today
Time = Time
U.S. News = United States News

GENERAL

Amer For Serv = American Foreign Service Journal
Amer Leg = American Legion Magazine
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Collier's = Collier's
Cos = Cosmopolitan
Cur His = Current History
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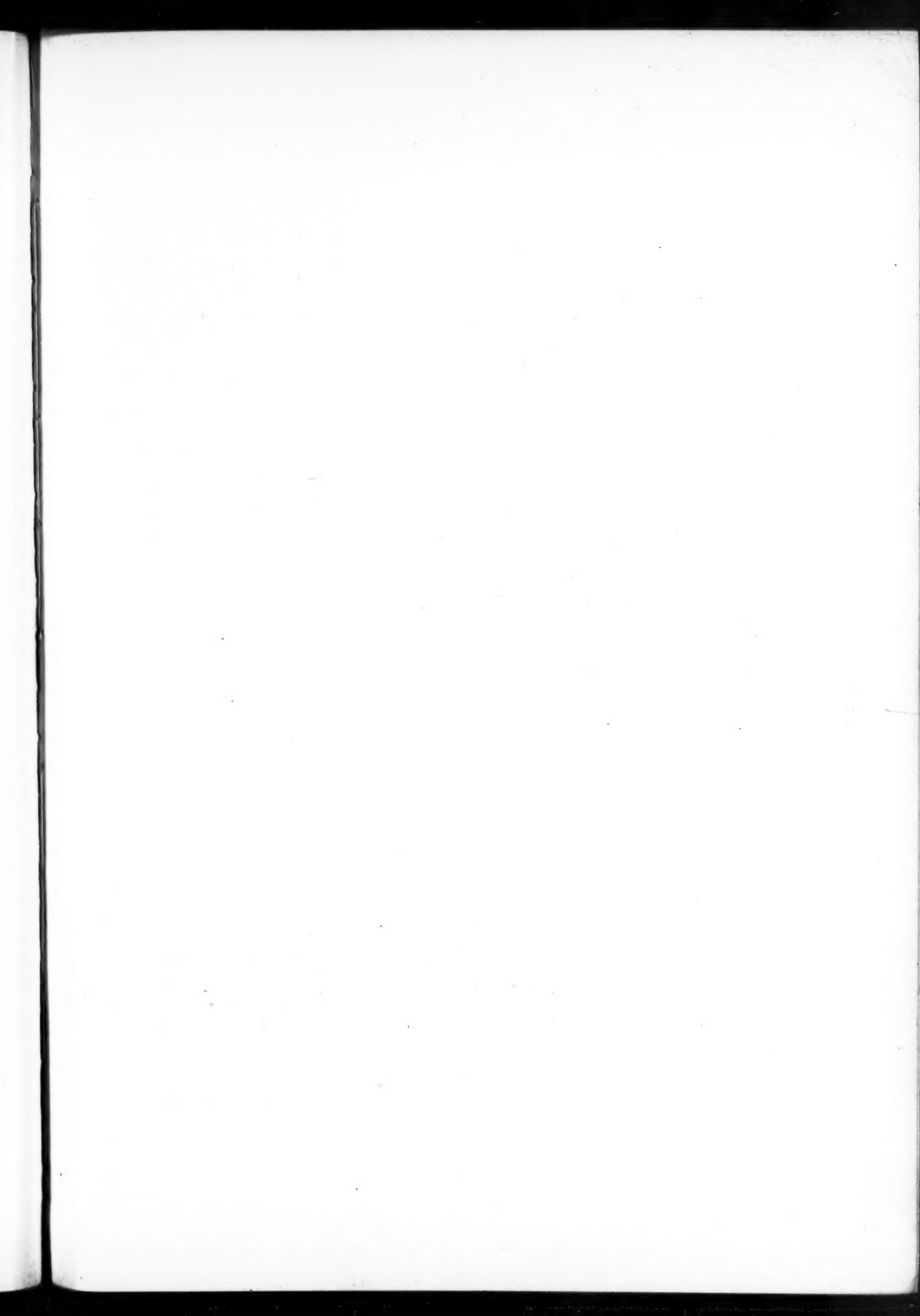




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